Vol. I. No. 1.
196 · 7-1
m. 50.
31/1/1964

Vols. 1 & 2 now complete
(with composite index)

January, 1936. -March

1987/35

Australian ORCHID REVIEW

C.T.G.

Price 1/6

The Official Organ of
The Orchid Society of N. S. Wales.

26

OFFICERS
of
The Orchid Society
of New South Wales

●

President:
HIS HONOUR JUDGE H. F. MARKELL, K.C., B.Sc., B.A., LL.B.,
"Kooyong," Hastings Road,
WARRAWEE

Vice-Presidents:

C. A. JAEDE, M.B.,
4 Rodey Street,
MASCOT

REV. H. M. R. RUPP, B.A.,
The Rectory,
WOY WOY

Secretary:
T. H. JAMES,
Arabella Street,
LONGUEVILLE

Treasurer:
L. F. HAWLEY,
12 Seaview Street,
SUMMER HILL

Committee:

E. A. HAMILTON,
16 Hercules Street,
CHATSWOOD

S. C. JAMES,
39 Duntroon Avenue,
ROSEVILLE

Journal Committee:

Sub. Editor:
R. M. STEWART
14 Bannerman Street,
NEUTRAL BAY

Hon. Editor:
G. H. SLADE, B.Sc.,
"Raiatea," Oyama Avenue,
MANLY

C. A. GOSPER,
View Street,
LANE COVE

Australian ORCHID REVIEW

CONSOLIDATED INDEX

VOLUMES 1 and 2 1936 - 1937

Comprising:—

General Index .... Page 3
Index to Photographs .... ,, 11
Index to Articles .... ,, 12

1/6 per copy **6/- yearly, post free**

AUSTRALIAN ORCHID REVIEW

Official Organ of
THE ORCHID SOCIETY OF NEW SOUTH WALES
QUEENSLAND ORCHID SOCIETY

●

The New South Wales Orchid Society meets on alternate last Tuesdays and Thursdays in Room 507, Phillip House, Phillip Street, Sydney, at 8 p.m.

President:	*Hon. Secretary*:
HIS HONOUR JUDGE H. F. MARKELL Warrawee, N.S.W.	T. H. JAMES 67 Arabella Street, Longueville N.S.W.

The Queensland Orchid Society meets second Friday of each month in the Miniature Rifle Range Building, Boundary Street, Brisbane.

President:	*Hon. Secretary*:
M. P. CAMPBELL Wilston Brisbane	T. C. HARVEYSON Box 2002X, G.P.O. Brisbane

●

Inquiries for Advertising space should be addressed to
Shepherd & Newman Pty. Ltd.
Printers and Publishers
YURONG STREET, SYDNEY, N.S.W.

Current and Back Numbers of the "Australian Orchid Review" may be obtained from the Offices of the Publishers: 13-15 O'Connell Street, Sydney. G.P.O. Box 2582E.

General Index

Vol. No. Page Vol. No. Page
ACIANTHUS 1 3 14 1 4 31
2 1 31
A. caudatus 1 3 15
A. exertus 1 3 15
A. fornicatus 1 3 15 1 4 31
2 1 31
A. reniformis 1 3 15 1 4 31
ADA 2 2 4
AERIDES 1 1 28 1 3 10
1 4 26 2 2 8
A. crassifolium .. 2 3 26
A. Fieldinghii 1 2 6 1 3 10
A. Lawrenciae 2 3 14
A. odoratum 1 4 30
AERIDOVANDA
A. Mundyi 1 4 22
ANGRAECUM 1 4 26 2 2 17, 20
2 4 25
A. eburneum 2 2 17
A. infundibulare .. 2 4 26
A. Kotschyi 2 4 26
A. Sanderianum .. 2 2 17
A. sesquipedale .. 2 2 17
A. Thompsonii 2 4 25
ANGULOA 1 1 27, 28
ANOECTOCHILUS .. 2 1 11, 31 2 2 19
ARACHNANTHE .. 2 2 14
A. Lowii 1 4 18 2 3 5, 18
2 4 14
ARUNDINA 2 2 21, 22 2 4 14
Arsenate of Lead .. 1 4 26 2 2 18
(See also Calcium Arsenate)
BACK BULBS 1 3 23, 24 1 4 14
2 1 10
"Box Tree Orchid" .. 1 1 12
(See also under Dendrobium aemulum)
BRASSAVOLA 1 1 15, 22, 24
B. Digbyana 1 1 24 2 4 4
BRASSIA 2 2 4
B. verrucosa 2 4 9
BRASSOCATTLEYA 1 1 12, 24 1 4 15, 25
2 1 12
B. C. Cliftonii 2 3 15
B. C. Cliftonville .. 2 3 15
B. C. Cluny 1 2 6 2 1 23
B. C. Gertrude West 2 2 23
B. C. Fabia 1 2 6
B. C. Heather Queen 1 2 6
B. C. Pauline 2 3 13
B.C. Princess Patricia 1 4 17
B. C. The Friar .. 1 4 6
BRASSOLAELIOCATTLEYA 1 1 24 2 1 12
B. L. C. Azora 1 4 18
BULBOPHYLLUM .. 1 4 9, 10
B. auriantiacum .. 2 1 30
B. Baileyi 2 1 30
B. Bowkettae 2 1 30
B. cilioglossum ... 2 1 30
B. elisae 1 3 14, 22
B. exiguum 1 3 14, 22
var. Dallachyl .. 2 1 28
B. lichenastrum .. 2 1 30
B. Macphersonii .. 2 1 24, 30 2 4 28
B. nematopodum . 2 1 30
B. Prenticei 2 1 30
B. punctatum 2 1 30
B. radicans 2 1 30
B. Shepherdii 2 1 30
B. Toressae 2 1 30
B. tuberculatum .. 1 4 14

Vol. No. Page Vol. No. Page
CALADENIA 1 3 13 1 4 31
2 1 31 2 2 9
2 4 19
C. alba 1 3 15 1 4 32
C. arenaria 1 4 31
C. carnea 1 4 32 2 1 31
C. clavigera 1 4 31
C. coerulea 1 4 32
C. cucculiata 1 4 32
C. dilatata 1 4 31
C. filamcutosa 1 4 32
C. Pattersonii 1 4 32 2 4 19
CALANTHE 1 1 21 1 2 31
1 3 19 1 4 26
2 1 14, 30 2 2 23
2 4 14, 28
C. Veitchii 1 4 18
C. veratrifolia 2 1 24, 30 2 4 28
Calcium Arsenate .. 2 4 29
(See also Arsenate of Lead)
CALEANA 1 4 31
C. major 1 3 16 1 4 31
C. minor 1 4 31
CALOCHILUS 1 3 22
CATESETUM
C. macrocarpum .. 1 2 6
CATTLEYA 1 1 12, 15, 18, 22, 24, 25, 27,
28 1 2 5, 9, 11, 12, 16, 18, 30,
31 1 3 5, 8, 16, 18, 25, 26, 27,
33 1 4 6, 14, 15, 18, 19, 20, 22,
24, 25, 26, 31 2 1 4, 5, 10, 12, 17, 20, 27,
28 2 2 4, 12, 13, 14, 16, 20, 21,
22, 23, 24, 30 2 3 7, 14, 16, 20, 26, 27, 30
2 4 4, 6, 9, 10, 14, 21, 30
Vol. No. Page Vol. No. Page
C. Acquinae 1 4 25
C. amethystoglossum 2 3 8
C. Angus 2 2 23
C. Argus 1 2 6
C. aurea 2 3 8
C. bicolor 2 3 8
C. Bowringiana .. 1 4 18 2 2 21, 30
2 3 5
C. Dowiana 2 3 8
var. aurea 1 1 27
var. Rosita 1 1 17
C. Dowiana x Constance Wigan .. 1 2 6
C. Eldorado 2 3 8
C. Frankensteiniana 2 4 4
C. Gaskelliana ... 1 2 27 1 3 27
2 2 24
C. gigas 1 1 22 1 2 6
1 4 18 2 2 24
2 3 7, 8 2 4 9
C. guttata 2 3 8
C. Hardyana x Enid 1 2 6
C. labiata 1 1 2, 27 1 3 27
1 4 25 2 2 24
2 3 7
C. Lawrenciana .. 2 3 8
C. Loddegesii 1 4 18 2 2 24
C. Luddemanniana 1 4 18
C. Mendelii 1 1 22 1 2 30
2 3 30
C. Mossiae 1 1 22 1 2 30
1 3 27 1 4 18
2 2 24 2 3 7
C. Percivalliana .. 2 3 30
C. Portia 1 3 27
C. Remy Cholet .. 1 4 17
C. Schroederae .. 1 2 30 1 3 27
1 4 18 2 2 24
2 3 7

	Vol.	No.	Page	Vol.	No.	Page
C. Skinneri	1	1	27	1	4	18, 25
	2	2	24			
C. Stoneyware	1	2	30			
C. suavior	1	4	25			
C. superba	2	3	8			
C. Titus	1	4	17, 25	2	3	15
C. Trianae	1	1	22	1	2	30
	1	3	27	1	4	18
	2	2	24	2	3	30
C. velutina	2	3	8			
C. Warscewiczii (see under Cattleya gigas)						
C. Woden	1	4	25			
CHEIROSTYLIS ...	2	1	31			
C. Ovata	2	1	31			
CHILOCHISTA	2	1	31	2	3	12
C. phyllorhiza	2	1	31			
CHILOGLOTTIS ..	1	4	32			
C. formicifera	1	3	15	1	4	32
C. reflexa	1	3	15			
C. trapeziformis ..	1	3	15	1	4	32
CIRRHOPETALUM	2	1	30	2	4	28
C. clavigerum	2	1	30			
C. Medusae	1	2	29			
CLEISOSTOMA	1	4	14	2	1	31
	2	3	12	2	4	28
C. Armitii	2	1	31			
C. brevilabre	2	1	24, 31			
C. congestum	2	1	31			
C. erecta	1	4	14			
C. Keffordii	2	1	31			
C. Macphersonii ..	2	1	31			
C. orbiculare	2	1	24, 31	2	4	28
C. tridentatum ...	1	3	14, 22			
COCHLIODA	1	4	8			
COELOGYNE	1	2	30	1	4	19
	2	2	4, 30	2	4	14
C. asperata	1	4	18	2	4	10
C. cristata	1	4	4, 6, 18			
	2	1	20	2	3	27
	2	4	5, 6			
var. alba	1	4	6			
„ Chatsworth ..	1	4	6			
„ Leemoniana .	1	4	6			
C. flaccida	2	2	11			
C. Massangeana ..	1	4	12			
C. Mooreana	1	4	18			
C. odoratissima ..	2	2	22			
C. pandurata	1	4	18			
C. speciosa	1	2	6			
CORYANTHES						
C. maculata	1	1	13			
CORYSANTHES ...	1	1	22	1	3	14, 21
	2	1	31			
C. aconitiflorus ..	2	1	31			
C. bicalcarata ...	1	3	15			
C. Diemenica	1	3	21			
C. fimbriata	1	3	15, 21			
C. Hamiltonii (See C. Diemenica)						
C. Macrantha	1	1	13			
C. pruinosa	1	3	15			
CRYPTOSTYLIS ..	1	1	22			
C. erecta	1	1	22			
C. heptochila	1	1	22			
C. longifolia	1	1	22			
CRYTALTHEMIS						
C. Slateri	1	1	21			
Culture						
Aerides Fieldinghii	1	3	10			
Aerides odoratum .	2	1	13			
Angraecums	2	2	17	2	4	25, 26
Arachnanthe Lowii	2	3	18			
Botanical epiphytes & terrestrials .	1	3	16			
Cattleyas	1	1	22, 24, 25			
	1	2	12, 30	1	3	25
	1	4	25	2	1	12
	2	2	13, 14, 23, 24			
	2	3	7, 8	2	4	4

	Vol.	No.	Page	Vol.	No.	Page
Coelogyne cristata	1	4	6			
Cymbidiums	1	2	23, 24	1	3	28
	2	1	4, 6			
Cym. canaliculatum	1	2	28			
Cym. Gammieanum	2	3	29			
Cym. grandiflorum	1	2	20			
Cypripedium	1	2	8, 9, 20			
	1	3	27, 30, 31			
Cyp. Charlesworthii	2	3	19			
Dendrobiums	1	3	29	2	1	15, 16
	2	2	25, 30			
Den. bigibbum	2	1	21, 22			
Den. falcorostrum	1	3	31	2	4	12
Den. infundibulum	1	1	20			
Den. nobile	1	1	30	2	2	25
Den. phalaenopsis ..	1	2	25	2	1	21, 22
	2	3	20			
Den. speciosum ...	2	1	7, 8			
Den. Wardianum .	2	1	23			
Disas	2	3	23			
Epidendrums	2	1	27			
Epi. O'Brienianum	1	1	26			
General	1	1	20	1	2	30, 31
	1	3	5, 25, 26			
	1	4	20, 26, 28, 29, 30			
	2	1	13	2	2	15, 16
	2	2	27, 30	2	3	26, 27
	2	4	5, 6, 9, 10			
Miltonias	1	2	19	2	1	5, 13
Newly Imported Plants	2	1	19	2	4	23, 24
Odontoglossums ..	1	3	17, 18, 19			
	1	4	7, 8	2	1	22
	2	2	3			
O. grande	2	2	5			
Phalaenopsis	1	2	26			
Stanhopea	1	4	22			
Thunias	1	2	9			
Vandas	1	3	10	2	2	7, 8, 14
Vanda Coerulea ..	1	2	20	1	3	9
Zygopetalum Mackayii	1	3	24	2	2	20
CYMBIDIUM	1	1	11, 12, 15, 26, 27, 28			
	1	2	4, 5, 16, 23, 24, 27, 31			
	1	3	5, 18, 19, 23, 24, 25, 26			
28, 29, 30, 31, 33	1	4	5, 6, 19, 22, 24, 26			
	2	1	4, 6, 9, 20, 30			
	2	2	6, 12, 14, 15, 22, 27, 29,			
30	2	3	16, 18, 20, 27, 28			
	2	4	3, 5, 6, 10, 28, 30			
C. albuciflorum ...	1	1	26	1	2	28
C. Alexanderii	2	1	6			
C. aliofolium	1	2	23	2	2	22
C. Auriga x Miranda	2	2	6	2	4	15
C. bicolor	1	2	6	2	2	22
C. Calypso	2	3	2			
C. canaliculatum ..	1	2	28	1	3	10, 11, 12
	2	1	30	2	4	28
var. marginatum	2	1	30			
var. Sparkesii ...	2	1	30	2	4	28
C. Ceres	1	3	23			
C. Coningsbyanum	2	3	2			
C. Cooperi	2	3	2			
C. cyperfolium	1	2	23			
C. Devonianum ..	1	1	23	1	2	8
	2	3	28			
C. Doris	1	3	6	2	2	6
C. eburneum	1	2	23, 24	1	4	24
C. elegans	1	1	23	1	2	8
	2	3	29			
C. Erica Sander ..	1	3	24	2	4	12
C. giganteum	1	1	26	1	2	24, 31
	1	3	6, 24, 28			
	1	4	24	2	2	15
C. Gottianum	1	2	23	2	1	4
C. grandiflorum ..	1	1	26	1	2	4, 23, 24
	1	3	23	1	4	5, 17, 24
C. Hera x Gattonense	2	3	25			

Vol. No. Page Vol. No. Page
C. Hillii 2 1 30
C. Hookerianum (See under Cym. grandiflorum)
C. Huttonii 1 2 24
C. insigne Sanderi 1 1 26 1 2 4, 23, 24
1 3 23 1 4 5
2 1 4
C. iridifolium 2 1 24, 30 2 4 28
C. Landrail 1 3 6
C. longifolium 2 3 29
C. Louis Sander .. 1 2 6
C. Lowianum 1 2 4, 24 1 4 19, 24
2 1 4
C. Lowio-eburneum 1 4 19
C. Madeline 1 2 4
C. Mastersii 1 2 6 1 3 6
2 2 15
C. Mem. P. W. Janssens 1 2 23
C. Parishii 1 3 6
C. Pauwelsii 1 2 4 1 3 23
2 3 14
C. suave 1 1 26 1 3 13, 23
2 1 24, 30 2 4 28
C. Traceyanum .. 1 2 24 1 3 6, 24, 28
2 1 4 2 2 14, 15
CYPERORCHIS
C. elegans (See Cymbidium elegans)
CYPRIPEDIUM 1 1 12, 15, 18, 26, 27, 28
1 2 8, 9, 10, 16, 18, 20, 30
1 3 8, 25, 27, 33
1 4 12, 15, 18, 22, 26, 31
2 1 20 2 2 4, 15, 22
30 2 3 16, 17, 18, 20, 27
2 4 5, 6, 10, 22, 30
C. Argus 2 3 14
C. Ashburtonii 1 3 6
C. barbatum 1 1 15 1 2 6, 8
C. Baron Schroederae 1 2 9
C. bellatulum 1 1 18 1 2 8, 9, 10
1 3 28 1 4 18
2 2 22
C. Boxalli 1 1 27
C. Cairo 1 3 6
C. callosum 1 1 28, 29 1 2 6
2 3 26
C. Cappamagna .. 1 1 27
C. Cardemona 1 4 5
C. Caruso 1 3 6
C. Charlestonae .. 1 3 6
C. Charlesworthii . 1 1 18, 28 1 2 6, 8
1 3 6 1 4 5, 24
2 3 19
C. Chieftain 1 3 6
C. ciliolare 1 1 28
C. concolor 1 1 18
C. Curtisii 1 1 28 1 2 8
1 4 5, 18, 19
2 3 18
C. Dominianum .. 1 1 27
C. Dreadnaught .. 1 4 12
C. Eagle 1 3 6
C. Elise x Bectoniae 1 2 6
C. Fairrieanum .. 1 1 15, 18, 27
1 2 6, 8, 10
1 3 6 2 1 19
2 2 4
C. Gertrude West 2 4 25
C. gigas
var. Cordean Hall 1 4 18
C. glaucophyllum .. 1 1 28 1 2 18
2 4 10
C. Goliath 1 3 6
C. Harrisianum
Bull's var. 1 2 6
var. superbum 1 4 30
C. Haynaldianum . 1 2 8 2 3 14
C. hirsutissimum .. 1 4 24 2 2 22
C. Illium 1 3 6

Vol. No. Page Vol. No. Page
C. insigne 1 1 15 1 2 9
1 3 5, 6, 28, 30
1 4 24
var. Harefield Hall 1 2 9 1 3 6
var. Royalty .. 2 3 17
var. Sanderae .. 2 3 17
var. The Queen 2 3 17
C. Io Grande 1 2 6 1 3 6
C. Javanicum 1 1 28 1 2 18
C. Juliet 2 3 17
C. Lawrencianum . 1 2 8
C. Leeanum 1 1 15 1 3 6
C. longifolium ... 1 1 27
C. marmorophyllum 2 2 12
C. Maudiae 1 2 9
var. magnificum 1 2 6 1 4 19
var. Westonbirt 2 3 17
C. Minchinbury .. 1 3 6
C. Minos Younghii 1 3 27
C. Mona 1 2 6
C. nitens
var. superbum 1 3 6
C. nitens x Leeanum 1 3 6
C. niveum 1 1 18
C. Olivia 1 3 6
C. Our Prince 1 2 6
C. Parishii 1 1 27 2 3 27
C. Pixie 1 3 6
C. resplendum ... 1 2 6
C. Robert Duncan 1 3 6
C. Rothschildianum 1 4 18
C. Spicerianum .. 1 1 27 1 2 8
1 3 6 1 4 24
C. Sullivan 2 3 21
C. Thadia 1 2 6
C. Thalia
var. Frances Wellesley ... 1 3 6
C. tonsum 1 1 28 1 2 6
C. Triumphans ... 1 2 6 2 3 17
C. Van Dyke 1 2 6
C. venustum 1 1 15 1 2 8
1 3 6
C. villosum 1 1 27 1 2 8, 9
1 4 18, 24
C. Wellesleyanum . 1 1 30
Damping Off 1 1 18, 20
DENDROBIUM 1 1 14, 15, 18, 19, 27, 28, 30
1 2 5, 6, 8, 9, 16, 17, 18
1 3 5, 19, 26, 29, 31
1 4 9, 10, 12, 14, 16, 17, 18,
19, 23, 24, 26, 32, 33 2 1 7, 15, 19, 20, 30
2 2 4, 16, 21, 25, 26, 27, 30
2 3 13, 14, 16, 18, 20, 27
2 4 3, 5, 6, 10, 12, 14, 19,
22, 23, 26, 28, 30
D. acuminatissimum 2 2 26
D. acuminatum .. 2 2 26
D. adae 2 1 29
D. aemulum 1 1 12, 16
1 3 10, 14, 15, 16, 22
1 4 19, 23 2 1 29
D. aggregatum ... 1 4 19 2 1 18
D. agrostophyllum 2 1 29
D. Ainsworthii 2 1 16
D. aliofolium 2 2 26
D. amboinense 2 2 26
D. amoenum 1 4 10
D. anosmum 2 2 26
D. antennatum ... 2 2 26
D. Artemis 1 1 15 1 2 7
1 4 17
D. atropurpureum 2 2 26
D. aureum 1 4 19 2 1 15, 16
2 3 27
D. Baileyi 2 1 29
D. Bairdianum ... 2 1 29
D. barbatum 2 2 26
D. Barthelsianum .. 1 2 8

	Vol.	No.	Page	Vol.	No.	Page
D. Bauerlenii	2	2	26			
D. Bensonae	1	1	28	2	1	15
D. bifalce	2	1	30			
D. biflorum	1	4	10			
D. bigibbum	1	1	16	1	2	27
	1	3	29	2	1	15, 21, 29
	2	2	18, 25, 26, 28			
	2	4	28			
D. bilobum	2	2	26			
D. Bloucaltii	2	3	14			
D. bracteosum	2	2	26			
D. canaliculatum	1	1	16	2	1	29
	2	2	26	2	4	7
D. carnosum	2	2	26			
D. Carrii	2	4	28			
D. cavipes	2	2	26			
D. cerasinum	2	2	26			
D. chrysanthum	1	1	28	2	1	15, 16
	2	2	16, 26			
D. chrysotoxum	1	1	16	1	3	29
	1	4	19, 23, 33			
	2	1	15	2	2	25
	2	3	20, 27			
D. clavatum	2	1	15			
D. coelogyne	2	2	26			
D. comalum	2	2	26			
D. connatum	2	2	26			
D. crassicaule	2	2	26			
D. crassinode	1	4	19	2	1	15
	2	4	5			
D. crumenatum	1	3	32	2	2	18, 26
	2	4	10			
D. cucumerinum	1	1	16, 28	1	3	14
	1	4	10			
D. Cunninghamii	1	4	10			
D. Cuthbertsonii	2	2	26			
D. cyanocentrum	2	2	26			
D. Cybele	2	2	26			
var. Gatton Park	2	1	16			
D. cymbidoides	2	2	26			
D. D'Albertsii	1	3	33			
D. Dalhousieanum	1	1	16, 28	1	2	5, 8
	1	4	23	2	1	6
	2	3	26, 27			
D. Dearii	1	1	16	2	1	15
D. delicatum	1	1	16, 20	1	4	16, 19
D. densiflorum	1	1	16, 28	1	2	30
	1	4	23	2	1	15
	2	3	20			
D. desmotrichoides	2	2	26			
D. Devonianum	1	1	16	1	4	18
	2	1	15			
D. Dominianum	1	4	17	2	1	16
D. eborescense	1	3	33			
D. Ellen	2	1	20	2	4	3, 17
D. eriaeflorum	2	2	26			
D. excavatum	2	2	26			
D. Falconeri	1	1	16	2	1	15
D. falcorostrum	1	1	16, 20	1	3	29, 31
	1	4	19, 23	2	1	17
	2	2	26	2	4	11, 12, 22
D. Farmeri	1	1	16	1	4	19
	2	1	15			
D. fimbriatum	1	1	16	2	2	21
var. occulatum	1	4	19	2	1	15
	2	3	27			
D. Findlayanum	1	1	12			
	1	4	5, 18, 19, 33			
	2	1	15, 16			
D. Fitzgeraldii	2	1	29	2	4	28
D. flabellum	2	2	26			
D. flagellum	2	2	26			
D Fleckeri	2	1	30			
D. Formosum	1	1	16	1	2	5, 8
	1	4	19			
var. giganteum	1	2	31	1	4	33
D. funiforme	2	2	26			
D. furcatum	2	2	29			
D. fuscum	2	1	29			

	Vol.	No.	Page	Vol.	No.	Page
D. fusiforme	1	1	16	1	3	33
	2	1	29			
D. Gatton Monarch	1	2	8	2	2	23
D. Gatton Sunray	1	2	5, 8			
D. glomeratum	2	2	26			
D. Goldii (See under Dendrobium superbiens var. Goldii)						
D. Gouldii	2	1	29			
D. gracilicaule	1	1	16			
	1	4	13, 14, 19, 23			
D. gracillimum	1	1	20	1	4	19, 23
D. grande	2	2	26			
D. herpetophytum	2	2	26			
D. hispidum	2	1	29	2	2	26
D. hosei	2	2	26			
D. Howeianum	1	4	13, 14			
D. Huia	1	2	8			
D. hymenophyllum	2	2	26			
D. Illustre Florence Bartels	1	2	8			
D. inaequale	2	2	26			
D. infundibulum	1	1	20, 30	1	2	5, 8, 30
	1	4	19	2	1	15
	2	4	5			
D. insigne	1	3	33	2	2	26
D. involutum	1	3	33			
D. Jamesianum	1	1	20	1	4	19
	2	3	27	2	4	5
D. Johannis	1	1	16	1	2	27
	2	1	29			
D. Johnsonii	2	1	30			
D. Keffordii	1	3	33	2	1	29
D. Kingianum	1	1	16, 20			
	1	4	10, 12, 16, 19, 23			
	2	1	16, 20	2	2	26, 27
	2	4	17			
D. Kondersii	2	2	26			
D. Lady Colman	1	2	8	2	1	16
D. lammelatum	2	2	26			
D. lamprocaulon	2	2	26			
D. lasianthera	1	1	10			
D. leonis	2	2	26			
D. linawinianum	2	1	16			
D. linearifolium	2	2	26			
D. linguaeforme	1	1	16, 17	1	3	14,16, 22
	1	4	19	2	1	29
	2	2	21			
D. linguella	2	2	26			
D. longicolle	2	2	26			
D. Maccarthiae	2	2	22			
D. Macraei	2	2	26			
D. macrophyllum	2	2	26			
D. melanostictum	2	2	26			
D. Micholitzii	2	2	26			
D. microglaphys	2	2	26			
D. minax	2	4	13			
D. miribilianum	1	4	10			
D. Miss F. King	2	4	23			
D. Mohlianum	2	2	26			
D. moniliforme	1	4	10			
D. monophyllum	1	1	16			
D. Moorei	1	4	13, 14			
D. Mortii	1	4	12			
D. moschatum	1	1	16	1	4	19
D. munificum	2	2	26			
D. mutabile	2	2	26			
D. nobile	1	1	11, 12, 15, 16, 19, 20, 28, 30			
	1	2	8, 30			
	1	3	5, 29			
	1	4	10, 17, 19, 23			
	2	1	15, 16	2	2	21, 25, 26
	2	3	26, 27	2	4	5
var. alba	1	3	29	2	2	26
var. nobilius	1	3	29	2	1	16, 26
D. nommularia	2	2	26			
D. orchreatum	2	1	15			
D. ophioglossum	2	1	29			
D. papilioniferum	2	2	26			
D. pectinatum	2	2	26			

	Vol.	No.	Page	Vol.	No.	Page
D. phalaenopsis ..	1	1	16	1	2	17, 24, 25
	1	3	31	1	4	19, 33
	2	1	15, 21, 29			
	2	2	26, 28	2	3	20, 27
D. Pierardii	1	1	16	1	4	19
	2	3	27	2	4	5
D. piestocaulon ..	2	2	26			
D. pleianthum ...	2	2	26			
D. pruinosum	2	2	26			
D. pulchellum	2	1	15			
D. pulchrum	2	1	29			
D. pumilum	2	2	26			
D. pymaeum	2	2	26			
D. regale	2	2	26			
D. regium	1	2	5			
D. Renown	2	4	23			
D. rigidum	2	1	29			
D. Sanderi	1	2	5, 8	2	3	14
var. parviflorum	2	3	14			
D. sarchochilus ...	2	2	26			
D. Schniderae ...	1	3	16	1	4	10
D. Schroederianum	2	1	21			
D. secundum	2	2	26			
D. Smilliae	1	3	33	2	1	29
D. speciosum	1	1	8, 12, 16, 17, 20			
	1	3	14, 22, 29			
	1	4	10, 16, 19, 23			
	2	1	7, 29	2	2	26, 27
var. Hillii	1	4	16			
D. spectabile	2	2	26			
D. spurium	2	2	26			
D. staterianum ...	2	1	21			
D. striolatum	1	3	22			
D. Stuartii	2	1	29			
D. sophronites	2	2	26			
D. suavissimum ..	2	4	10			
D. subacaule	2	2	26			
D. subulatum	2	2	26			
D. superans	2	2	26			
D. superbiens	1	1	16	1	2	18, 27
	1	3	31	1	4	19, 26, 33
	2	1	15, 21, 29			
	2	2	21, 26, 27, 28			
	2	3	22, 26, 27			
	2	4	9			
var. Goldii ..	2	4	9, 10			
D. superbum	1	3	29	2	1	21
	2	2	18, 25	2	3	13, 14
D. steatoglossum ..	2	2	26			
D. stuposum	2	2	26			
D. taurinum	1	2	18			
D. Taylori	2	1	29	2	4	28
D. teres	2	2	26			
D. teretefolium ..	1	1	12, 16	1	3	13, 22
	1	4	10, 19	2	1	24, 30
	2	2	21			
var. Fairfaxii .	1	3	14			
D. tetragonum ...	1	1	16	1	4	10, 19
	2	1	16, 20, 24, 29			
	2	4	17, 19, 26, 28			
var. giganteum	2	4	20			
var. Hayesianum	2	4	20			
var. viriabilis ..	2	4	20			
D. The Gem						
var. Artemis ..	2	1	16			
D. Thwaitesii	1	1	12			
D. thyrsiflorum ..	1	1	16	1	2	17, 30
	1	3	29	1	4	33
	2	1	15	2	2	25
	2	3	14, 20, 27			
D. trachyrhizum ..	2	2	26			
D. Treubii	2	2	26			
D. trignetrum	2	2	26			
D. uneatum	2	2	26			
D. undulatum	1	1	8	1	2	18, 27
	1	3	32	1	4	10, 18, 23
	2	1	24	2	2	26
	2	4	10, 28			
D. utile	2	2	26			
D. veratrifolium ..	2	2	26			
D. violaceoflavens .	1	4	10			

	Vol.	No.	Page	Vol.	No.	Page
D. Wardianum ...	1	1	16	1	2	5, 8
	1	4	19, 31	2	1	15, 23
	2	2	16	2	4	5
var. giganteum	2	3	27			
D. Xanthrocentrum	1	1	12	1	3	25
D. Zippelii	2	2	26			
DIPODIUM	1	1	21	2	1	30
	2	4	28			
D. ensifolium	2	1	31	2	2	2
D. Hamiltonianum	2	1	31			
D. punctatum	2	1	31			
DISA	2	3	23, 29			
D. graminifolia. ..	2	3	29			
D. grandiflora	2	3	23			
DIURIS	1	2	21	1	3	13, 16, 22
	2	1	31	2	4	28
D. abbreviata	1	2	22			
D. alba	1	2	22	2	1	31
D. aurea	1	2	21, 22			
D. dendrobioides ..	1	2	22			
D. elongata	1	2	22			
D. lilacians	1	2	22			
D. longissima	1	2	22			
D. maculata	1	2	21			
D. pedunculata ..	1	2	22			
D. punctata	1	2	22	2	1	31
D. sulphurea	1	2	21, 22			
D. tricolor	1	2	22			
"Double Tails"	1	3	16			
EPICATTLEYA	1	1	20			
EPIDENDRUM	1	1	15, 22, 26			
	1	2	5	1	4	9, 19
	2	1	27, 28	2	2	4, 27
E. arachnoglossum	1	2	5			
E. atropurpureum .	2	1	27			
E. Boundii	1	2	5	2	1	27, 28
E. evectum	1	1	26	2	1	27
E. Lilac Queen ...	1	2	5	2	1	28
E. O'Brienianum ..	1	1	26	1	2	5
	1	3	5	2	1	27
E. prismatocarpum	2	1	28			
E. radicans	1	1	26	1	2	5
	2	1	27			
E. Stamfordianum	2	1	28			
E. vittellinum majus	2	1	27, 28			
EPIPOGUM	2	2	12			
E. nutans	2	2	12			
ERIA	2	1	30	2	3	12, 18
	2	4	14			
E. Australiensis ..	2	1	30			
E. eriaeoides	2	1	30			
E. Fitzalani	2	1	30			
ERIOCHILUS						
E. autumnalis	1	3	15			
E. cucullatus	1	4	31			
EULOPHIA	2	1	30			
E. Carri	2	1	30			
E. Fitzalani	2	1	30			
E. venosa	2	1	30			
"Four Angled Dendrobe" (See under Dendrobium tetragonum)						
GALEOLA						
G. cassythoides ..	1	1	21			
G. Frazeri	1	1	21			
G. Ledgeriana	1	1	21			
GASTRODIA	1	1	21			
GEODORUM	2	1	30			
G. dilatatum	2	1	30			
G. pictum	2	1	24, 30	2	4	28
"Ghost Flower"	1	1	21			
"Glass Substitute" ..	2	2	16			
GLOSSODIA	2	2	9			
G. major	1	3	15	1	4	31
G. minor	1	3	15	1	4	31

	Vol.	No.	Page	Vol.	No.	Page
GOODYERA	2	1	31			
G. polygonoides	2	1	31			
G. viridiflora	2	1	31			
GRAMMATOPHYLLUM	2	2	21, 22	2	3	18
G. speciosum	1	3	32			
"Greenhood"	1	1	28	1	3	16, 22
HABENARIA	2	2	12			
H. Banfieldii	2	2	12			
H. graminea	2	2	12			
H. Millari	2	2	12			
H. Xanthantha	2	2	12			
HETAERIA	2	1	31	2	3	12
H. tenuis	2	1	31			
House Construction	1	2	13	2	3	5, 6, 12
Hybridising (See under "Seed Raising")						
"Indian's Pipe"	1	1	21			
"King Orchid"	1	1	12			
"Kinta Weed" (see under Vanda Hookeriana)						
LAELIA	1	1	15, 22, 24			
	1	2	7, 30	1	4	18
	2	1	17			
L. anceps	1	1	22, 27	1	2	6, 26
	1	4	17	2	2	21
	2	3	5			
var. alba	1	4	17			
L. cinnabarina	2	4	10			
L. purpurata	1	4	18			
var. alba	1	1	27			
L. superbiens	1	4	18			
LAELIO-CATTLEYA	1	1	12, 24			
L. C. Britannia Majestic	2	3	7			
L. C. Canada	1	2	7			
L. C. Colmania	2	2	13			
L. C. Hardyana	2	3	7			
Lime—Use of	1	1	16			
LIPARIS	1	1	26			
L. atropurpurea	2	1	14			
L. cuneilabris	2	1	28	2	4	28
L. habenarina	2	1	28			
L. Nugentae	2	1	24, 28	2	4	28
L. reflexa	1	1	17	1	4	12
L. Simmondsii	2	1	14			
LUISIA	2	1	31			
L. teretefolia	2	1	31			
LYCASTE	1	2	30	2	4	5, 6
L. Skinneri	1	3	5			
LYPERANTHUS	1	4	31			
L. suaveolens	1	4	31			
Manure (See under "Culture")						
MASDEVALLIA	2	2	4			
MAXILLARIA	1	4	19	2	2	4
Mertilla Malayensis Fly	2	2	18			
MICROSTYLIS	2	1	28	2	3	12
	2	4	28			
M. congesta	2	1	28			
MICROTIS	2	1	31			
M. parviflora	1	3	21	2	1	31
M. porrifolia	1	3	21			
MILTONIA	1	2	18, 19, 20			
	1	3	18, 19	1	4	20
	2	1	5, 13, 17			
	2	2	4	2	4	10
M. Nadia	2	1	5			
M. Princess Mary	1	2	6			
M. vexillaria	1	2	19			
Mycorrhiza	1	1	6, 21			
"Native Hyacinth"	1	1	21			
"Native Potato"	1	1	21			
NERVILIA	2	1	31	2	4	28
N. Dallachyana	2	2	19	2	4	28

	Vol.	No.	Page	Vol.	No.	Page
N. holochila	2	1	31	2	2	19
	2	4	28			
N. pachystamoides	2	1	31			
N. uniflora	2	1	31			
Nicoteen	1	2	10	2	1	6
OBERONIA	2	1	28	2	3	12
	2	4	28			
O. iridifolia	2	1	24, 28	2	4	28
O. pusilla	2	1	28			
O. Titania	2	1	24, 28	2	4	28
ODONTIODA	1	3	17, 18	1	4	7, 8
	2	3	20			
O. Lacerta	2	4	2			
O. Talma	1	2	6			
ODONTOGLOSSUM	1	2	18, 26			
	1	3	5, 17, 18, 19			
	1	4	7, 19, 20, 26			
	2	1	13, 17, 22			
	2	2	3, 4, 9			
	2	3	20			
O. amabile	1	4	8			
O. ardentissimum	1	4	8			
O. Auriga	1	3	17, 18	1	4	7
O. caudatum	1	4	7			
O. Cervantesii	1	4	7			
O. cirrhosum	1	4	7			
O. crispum	1	4	7, 8			
var. Britannia	1	4	7			
var. Cooksonii	1	4	7			
var. Fernley Sander	1	4	7			
var. Fans Masreel	1	4	7			
var. Leonard Perfect	1	4	7			
var. Luciano	1	4	7			
var. Perfection	1	4	7			
var. Pittianum	1	4	6			
var. Queen of the Earth	1	4	7			
var. Roger Sander	1	4	7			
O. excellens	1	4	7			
O. eximeum	1	4	8			
O. gloriosum	1	4	7			
O. grande	1	4	7	2	2	5
O. Harryano crispum	1	4	8			
O. Harryanum	1	4	8			
O. Lindenii	1	4	7			
O. Loochristense	1	4	7			
O. luteo-purpureum	1	4	7			
O. maculatum	1	4	7			
O. naevium	1	4	7			
O. Pescatorei	1	4	7, 8			
O. Polyanthum	1	4	7			
O. Rossii	1	4	7			
O. Septrum	1	4	7			
O. Thyades	1	4	17			
O. tripudans	1	4	7			
O. Triumphans	1	4	7			
O. Uro-Skinneri	1	4	7			
O. Wilckeanum	1	4	7			
ODONTONIA	1	3	18	1	4	7, 8
ONCIDIUM	1	2	18	1	4	9, 18, 26
O. incurvum	1	4	18			
O. Kramerianum	2	4	10			
O. lanceanum	2	4	10			
O. luridum	1	1	8	1	2	6
	1	4	18			
O. ornithorynchum	1	2	6			
O. papilio	1	4	18	2	4	10
O. sphacelatum	2	2	22			
ORNITHIDIUM	2	2	4			
ORNITHOCHILUS	2	1	31	2	4	28
O. Hillii	2	1	24, 31	2	4	28

	Vol.	No.	Page	Vol.	No.	Page
ORTHOCERAS						
O. strictum	1	2	22			
"Pencil Orchid"	1	1	12			
PERISTERIA	1	4	26			
P. elata	1	4	26	2	2	22
	2	3	20			
Permanganate of Potash	1	2	16			
Pests (See under separate headings)						
PHAIUS	1	1	21	1	3	19
	1	4	18, 26	2	1	30
	2	2	4			
P. grandifolius	1	1	27	1	4	18
	2	1	30			
PHALAENOPSIS	1	2	17, 18, 26, 27			
	1	4	18, 26	2	1	17
	2	2	28, 30	2	3	26, 27
	2	4	9, 10, 21, 28			
P. amabilis	1	2	17, 18, 26			
	1	4	18, 30	2	1	31
	2	2	18	2	3	27
P. Aphrodite	2	3	14	2	4	9
P. grandiflora	2	3	14			
P. Leucorhoda	1	4	18			
P. Rimestadtiana	1	2	26			
P. Rosenstromii	1	1	28	1	3	32
	2	2	5	2	3	11
P. Sanderiana	1	4	18			
P. Schilleriana	1	2	18, 26	1	4	18, 30
	2	3	14, 27	2	4	9, 10
P. Stuartiana	1	2	26	1	4	18
	2	4	9, 10			
P. violacea	1	2	26			
PHOLIDOTA	2	1	30			
P. imbricata	1	3	33	2	1	30
Photographing Orchids	2	2	9, 10, 11			
PHREATIA	2	1	30	2	3	12
P. limenophylax	2	1	30			
P. robusta	2	1	30			
PLATYCLINUS	1	4	18	2	2	4
P. glumaceum	1	4	18			
PLEIONE	2	2	22			
PLEUROTHALIS	1	4	9			
"Plum Pudding Flower"	1	1	21			
POTINARA	1	1	24	2	1	12
Potting & Potting Mixtures—						
Aerides Fieldinghii	1	3	10			
Cattleyas	1	1	25	1	4	25
	2	1	12	2	3	13, 14, 30
	2	3	8	2	4	30
Coelogyne cristata	1	4	6			
Cymbidiums	1	1	15	1	3	23
	2	1	4, 6			
Cym. Devonianum	2	3	28			
Cypripediums	1	1	15	1	2	9, 10
	1	3	23	2	3	17
Dendrobiums	1	1	16, 19, 20			
	1	3	19			
	1	4	22, 23			
Den. falcorostrum	2	4	12			
Den. nobile	2	2	25			
Den. Wardianum	2	1	23			
Disas	2	2	23			
General	1	1	19	2	1	19, 20
	2	2	4, 30			
Miltonias	1	2	19			
Phalaenopsis	2	2	30			
Thunias	1	3	9	2	4	6
Vandas	2	2	7, 8, 30			
Vanda coerulea	1	3	9			
Zygopetalum Mackayi	2	2	20			
PRASOPHYLLUM	1	1	22	1	3	21
	2	1	31			

	Vol.	No.	Page	Vol.	No.	Page
P. alpinum	1	3	21			
P. brevilabre	1	3	21			
P. flavum	1	3	21			
P. fuscum	1	3	21			
P. patens	1	3	21			
P. rufum	1	3	21	2	1	31
PTEROSTYLIS	1	3	14, 15, 16, 21			
	2	1	31	2	2	9
P. acuminata	1	3	15, 22			
P. aphylla	1	3	22			
P. clavigera	1	3	22			
P. concinna	1	3	15, 22			
P. curta	1	3	15, 22	2	1	31
P. cycnocephalia	1	3	22			
P. depauperata	2	1	31			
P. grandiflora	1	2	22	1	3	15
P. longifolia	1	3	15, 22			
P. Mitchellii	1	3	22			
P. mutica	1	3	22			
P. nutens	1	3	15, 16, 22, 23			
P. obtusa	1	3	14, 15, 22			
P. ophioglossa	1	3	6	2	1	31
P. parviflora	1	3	22			
P. pedunculata	1	3	15			
P. reflexa	1	3	15, 22			
P. revoluta	1	3	22			
P. rufa	1	3	22			
P. squamata	1	3	22			
P. striata	1	3	22			
P. Woollsii	1	3	22			
"Pysect"	2	1	6			
RENANTHERA	1	4	14	2	1	27
	2	2	22	2	4	14
R. alba	2	3	26			
R. Imschoodiana	1	4	18			
R. Lowii	1	2	18			
R. Maingayii	1	3	33			
Rhytida Strangei (See under "Snails")						
RHIZANTHELLA						
R. Gardnerii	1	1	21			
RHYNCOSTYLIS	1	4	31			
R. coelestis	1	4	30			
"Rock Lily"	1	1	12	2	1	7, 8
(See also under Dendrobium speciosum)						
"Rose Saw Fly"	2	2	6			
SACCOLABIUM	1	4	26, 30	2	2	17, 22
	2	3	26			
S. Blumei	1	1	28	1	4	30
	2	1	13			
S. giganteum	1	4	18	2	4	21
SARCOCHILUS	2	1	31	2	3	9, 10, 12
S. Blumei	1	2	6			
S. Ceciliae	2	1	31	2	3	12
S. divitiflorus	2	3	12			
S. falcatus	1	1	20	1	3	4, 6, 14
	2	2	27	2	3	11, 12
S. Fitzgeraldii	1	1	9, 10, 20			
	1	2	7, 8	1	4	11, 12
	2	3	9, 10, 11, 12			
S. Hartmannii	1	1	4, 9, 10, 20			
	1	2	7, 8	1	4	11, 12, 16
	2	3	11, 12			
S. Hillii	1	3	14, 22	2	1	31
S. olivaceous	1	3	14	2	1	31
	2	3	12			
S. parviflorus	1	3	14, 22			
S. platystachya	2	1	31			
S. rubicentrum	1	1	9, 10	1	2	28
Scale	1	2	10, 16	1	3	27
	1	4	26	2	1	6
	2	2	7			
Pink Wax Scale	1	2	10			
Red Scale	1	2	10			
SCHOMBURGKIA	1	1	22			
S. undulata	2	4	10			
Seed Raising	1	1	15	1	2	5, 7
	1	3	7, 8	1	4	15
	2	1	9, 10	2	4	3, 16

	Vol.	No.	Page	Vol.	No.	Page
SELENEPEDIUM	1	2	8	1	4	18
	2	2	30			
S. caudatum	1	4	19			
S. grandiflorum	1	4	19			
S. longifolium	1	4	19			
S. Schroederae	1	4	19			
S. Sedenii	1	4	19			
Slaters	1	2	16	1	3	16
	2	4	29			
Slugs	1	1	18	1	2	10, 16
	2	4	30			
Snails	1	2	10, 16	1	4	27
	2	1	26	2	4	30
"Soldiers' Crest Orchid" (See under Oberonia Titania)						
SOPHRO-CATTLEYA	1	1	24	2	1	12
SOPHRO-LAELIA	2	1	12			
SOPHRO-LAELIO-CATTLEYA	1	1	24	2	1	12
S. L. C. Isabella	2	3	13			
S. L. C. Isacol	2	1	12	2	2	13
SOPHRONITIS	1	1	15, 22, 24			
	2	2	4			
S. grandiflora	1	1	24			
S. Lowii	1	1	24			
SPATHOGLOTTIS	2	1	30	2	2	22
	2	4	14			
S. Parsonae	2	3	14			
S. Paulinae	2	1	30			
S. Soutteriana	2	1	30			
SPICULAEA	2	1	31			
S. irratabilis	2	1	31			
"Spider Orchid"	1	1	12, 28			
(See also under Caladenia Patersonii)						
SPIRANTHES						
S. Australiensis	1	1	22			
Sprays (See under separate headings)						
STANHOPEA	1	4	21			
S. bucephalus	1	4	22			
S. ecornuta	1	4	22			
S. Frankensteiniana	1	4	21			
S. tigrina	1	1	29	1	3	5
	1	4	22			
S. Wardii	1	4	22			
STAUROPSIS						
S. lissochiloides	2	4	10			
Stethopachys Formosa (beetle)	2	2	28			
"Sun Orchid"	1	1	28	1	2	21
TAENIOPHYLLUM	2	1	25	2	3	12
T. Muelleri	2	1	25			
Temperature	1	1	6, 8, 13, 14, 27, 28			
	1	2	12, 26, 27			
	2	1	22	2	3	20, 22, 24
	2	4	4, 30			
THELYMITRA	1	2	21	1	3	13, 22
	2	1	31	2	2	9
T. aristata	2	1	31			
T. carnea	1	2	22			
T. ixioides	1	2	22			
T. longifolia	1	2	21	2	1	31
T. megacolyptra	1	2	21			
T. nuda	1	2	21			
T. pauciflora	2	1	31			
Thrips	1	2	10	1	4	26
THRIXSPERMUM	2	3	9, 10, 11			
THUNIA	1	1	27, 28	1	2	31
	1	3	5, 9	2	4	5, 6
T. Marshalliana	1	2	6	2	1	9
Treatment (See under "Culture")						
TRICOGLOTHIS						
T. brachiata	2	3	14			
T. fasciata	2	4	14			
"Two Tails"	1	2	21			

	Vol.	No.	Page	Vol.	No.	Page
VANDA	1	1	12, 14	1	3	9, 10, 20
	1	4	5, 24, 26			
	2	1	20			
	2	2	4, 7, 8, 14, 17, 20, 27, 28, 30			
	2	3	13, 18, 19, 26			
V. Alpina	2	2	7, 8	2	4	7
V. Agnes Joachim (See below under V. Miss Joachim)						
V. Amesiana	1	4	16, 24, 31			
	2	2	8	2	3	26
	2	4	7			
V. Aurora	2	4	10			
V. Batemannii (See under Stauropsis lissochiloides)						
V. Bensoni	2	2	8	2	4	7
V. bicolor	2	4	7			
V. Boxalli	1	4	18	2	3	26, 27
V. Burgeffii	1	3	7			
V. coerulea	1	1	28	1	2	6, 20, 30
	1	3	5, 6, 9			
	1	4	18, 24	2	2	7, 8, 12
	2	3	5, 26	2	4	5, 7
V. coerulescens	2	2	8	2	4	8
V. concolor	1	3	10	2	2	8
	2	4	8			
V. cristata	2	2	8	2	4	8
V. Dearii	1	3	10	1	4	18
	2	3	26	2	4	8, 10
V. Denisoniana	2	2	8	2	4	8
V. Helvola	2	4	8			
V. Hookeriana	2	2	8	2	4	8
V. insignis	2	2	8	2	3	26
	2	4	8			
V. Kimballiana	2	2	8	2	4	8, 18
V. lamellata	2	2	8	2	4	8
var. Boxalli	2	4	8			
V. limbata	2	4	8			
V. Lowii (See under Arachnanthe Lowii)						
V. Luzonica	1	3	10	1	4	18, 30
	2	3	14, 26	2	4	8
V. Miss Dinger	1	4	16			
V. Miss Joachim	1	3	33	1	4	18, 31
	2	2	8, 21, 22, 27			
	2	3	13, 14, 26			
	2	4	14			
var. grandiflorum	1	4	16			
V. Parishii	2	2	8	2	4	8
var. Marriottiana	2	4	8			
V. pumila	2	4	8			
V. Roxburghii	1	4	30	2	2	8, 22
	2	4	8			
V. Sanderiana	1	1	28	1	2	6, 29, 30
	1	3	7	1	4	5, 18, 30
	2	2	7, 8, 17, 30			
	2	3	14, 24	2	4	10, 18
V. spathulata	2	2	22	2	4	18
V. Stangeana	1	4	17			
V. suavis	1	1	28	1	2	18
	1	3	7, 9	1	4	18
	2	2	27	2	3	26
	2	4	18			
V. Sumatrana	2	4	13			
V. superba	2	3	26			
V. teres	1	4	18, 31			
	2	2	7, 8, 14, 21, 22, 27			
	2	3	26	2	4	18
var. Andersonii	2	2	8, 27	2	4	18
var. candida	2	4	18			
V. tricolor	1	1	28	1	3	33
	1	4	16, 18, 30			
	2	2	7, 8, 18, 27, 28			
	2	3	26	2	4	18, 29
var. planilabris	2	4	18			
V. Watsonii	1	3	20	2	4	18
VANILLA	1	4	12, 18			
"Volck"	1	2	10	2	1	6
	2	2	7			
Watering (See under "Culture")						
White Oil Emulsion	1	2	10			
Wood Lice (See under "Slaters")						

	Vol.	No.	Page	Vol.	No.	Page
ZEUXINE	2	2	12	2	3	12
Z. oblonga	2	2	12			

	Vol.	No.	Page	Vol.	No.	Page
ZYGOPETALUM	1	3	24	1	4	24
	2	2	20			
Z. Mackayii	1	3	5, 6, 9, 24			
	2	2	20			

Index to Photographs

	Vol.	No.	Page	Vol.	No.	Page
A corner of Mr. T. C. Harveyson's glasshouse	2	2	5			
Aerides odoratum	2	1	13			
Angraecum sesquipedale	2	2	17			
Anguloa, An	1	1	27			
Anoectochilus Species	2	1	11			
Anoectochilus Yatesii	2	2	19			
Brasso-Cattleya Cliftonville	1	4	25	2	3	15
Brasso-Cattleya Fabia	1	2	17			
Brasso-Cattleya Pauline	2	3	13			
Cattleya Bowringiana	2	2	2			
Cattleya Dowiana (var. Rosita)	1	1	17			
Cattleya Frankensteiniana	2	4	4			
Cattleya Hybrid, Unnamed	2	3	7			
Cattleyas—Group of	2	2	23			
Chiloglottis reflexa	1	3	15			
Cirrhopetalum Medusae	1	2	29			
Coelogyne cristata	1	4	4	2	4	5
Coelogyne flaccida	2	2	11			
Coryanthes maculata	1	1	13			
Corysanthes fimbriata	1	3	21			
Cymbidium Auriga x Miranda	2	2	6			
Cymbidium Auriga x Pauwelsii	2	4	15			
Cymbidium Calypso	2	3	2			
Cymbidium canaliculatum (2)	1	3	11			
Cymbidium Devonianum	1	1	23			
Cymbidium elegans	1	1	23			
Cymbidium Erica Sander	2	4	12			
Cymbidium gammieanum	2	3	29			
Cymbidium Hera x Gattonense	2	3	25			
Cymbidium Mem. P. W. Janssens	1	2	23			
Cymbidium Pauwelsii	2	3	14			
Cymbidium suave	1	3	13			
Cymbidium Traceyanum	2	2	29			
Cypripedium callosum	1	1	29			
Cypripedium Cappamagna	1	1	27			
Cypripedium Charlesworthii	2	3	19			
Cypripedium Fairrieanum	2	1	19			
Cypripedium Gertrude West	2	4	25			
Cypripedium Harrisianum superbum	1	4	30			
Cypripedium insigne (var. Harefield Hall)	1	2	9			
Cypripedium Lowii	1	4	15			
Cypripedium Minos Youngii	1	3	27			

	Vol.	No.	Page	Vol.	No.	Page
Cypripediums—Group of	2	3	17			
Cypripedium Sullivan	2	3	21			
Cypripedium Wellesleyanum	1	3	30			
Dendrobium aemulum	1	3	15			
Dendrobium aggregatum	2	1	18			
Dendrobium Artemis	1	1	15			
Dendrobium Dalhousieanum	2	1	6			
Dendrobium Ellen	2	4	17			
Dendrobium falcorostrum	2	1	17	2	4	11
Dendrobium Hybrids—Group of	2	4	23			
Dendrobium infundibulum	1	1	30			
Dendrobium minax	2	4	13			
Dendrobium Moorei	1	4	13			
Dendrobium nobile	1	1	19			
Dendrobium primulinum	1	4	9			
Dendrobium pulchrum	2	1	29			
Dendrobium speciosum	2	1	7			
Dendrobium teretefolium	1	3	13			
Dendrobium tetragonum	2	4	19			
Dendrobium thyrsiflorum	2	2	25			
Dendrobium Wardianum	2	1	15, 23			
Dendrobium Xanthrocentrum	1	3	25			
Dipodium ensifolium	2	2	2			
Disa grandiflora	2	3	23			
Diuris aurea	1	2	21			
Diuris sulphurea	1	2	21			
Heating Installation in Glasshouse (3)	1	2	13			
Heating Unit—View of	1	2	14			
Judge Markell	2	3	4			
Laelio-Cattleya Canada	1	2	7			
Liparis Simmondsii	2	1	14			
Miltonia Nadia	2	1	5			
Miltonias, Group of	1	2	19			
Odontoglossum Auriga	1	3	17	1	4	7
Odontoglossum grande	2	2	15			
Odontoglossum Lacerta	2	4	2			
Odontoglossum Nerida	2	2	9			
Phalaenopsis Rosenstromii	2	3	11			
Phalaenopsis Schilleriana	2	4	9			
Pterostylis grandiflora	1	2	22			
Pterostylis nutans	1	3	21			
Pterostylis obtusa	1	3	14			
Rhytida Strangei	1	4	27			
Saccolabium Blumei	2	1	13			
Saccolabium giganteum	2	4	21			
Sarcochilus falcatus	1	3	4			

	Vol.	No.	Page	Vol.	No.	Page
Sarcochilus Fitzgeraldii	1	1	10	1	4	11
	2	3	9, 10			
Sarcochilus Hartmannii	1	1	4, 9, 10			
Sir Jeremiah Colman	1	1	7			
Sophro-Laelio-Cattleya Isacol	2	2	13			
Stanhopea Frankensteiniana	1	4	21			
Stanhopea tigrina	1	1	29			
Taeniophyllum Muelleri	2	1	25			
Thelymitra ixioides	1	2	22			
Thunia Marshalliana	2	1	9			
Vanda Burgeffii	1	3	7			
Vanda coerulea	2	2	7	2	4	7
Vanda Miss Dinger	1	4	16			
Vanda Sanderiana	1	2	29	1	4	17
Vanda tricolor	1	4	19	2	2	18
	2	4	29			
View of one of Judge Markell's Houses	2	3	5			
Zygopetalum Mackayii	1	3	9			

Index to Articles

	Vol.	No.	Page	Vol.	No.	Page
Aerides Fieldinghii	1	3	20			
Aerides odoratum	2	2	13			
Aeridovanda Maingayii	1	4	22			
Aids to Orchid Culture	1	1	16	1	2	16
	1	3	16	1	4	26
Angraecums	2	2	17			
Annual Meeting of the Orchid Society of N.S.W., 1936	1	3	6			
Ancectochili	2	1	11			
Arachnanthe Lowii	2	3	18			
Back Bulbs	1	4	14	2	1	10
Building up a Collection	1	4	23	2	1	17
	2	2	27			
Cattleya Bowringiana	2	2	30			
Cattleyas	2	1	12	2	2	23
	2	3	7	2	4	4
Cattleyas and Allied Genera	1	1	22			
Census of North Queensland Orchids	2	1	28	2	2	12
	2	4	28			
Christmas Meeting, 1936	1	1	5			
Coelogyne cristata	1	1	6			
Collecting of Orchids in South America	2	3	30			
Convert, A	1	2	15			
Consolidated Index	2	4	17			
Cool House Culture	1	1	29	1	2	30
	1	3	25	1	4	30
	2	2	15	2	3	20
	2	4	5			
Correction	2	2	4	2	3	8
Culture Notes:						
Cattleyas	1	2	30	1	3	26
Cymbidiums	1	3	28			
Cypripediums	1	2	20	1	3	27
Dendrobiums	1	3	29			
Culture of Cattleyas in Baskets	2	2	13			
Cymbidium canaliculatum	1	2	23	1	3	11
Cymbidium Devonianum	2	3	28			
Cymbidium gammieanum	2	3	29			
Cymbidiums	2	1	4			
Cymbidiums and their Simple Culture	1	2	23			
Cymbidium Traceyanum	2	2	14			
Cypripedium Charlesworthii	2	3	19			
Cypripediums in Southern Queensland	1	2	8	1	3	30
Dendrobium delicatum	1	4	16			
Dendrobium Ellen	2	4	17			
Dendrobium falcorostrum	1	3	31			
Dendrobium infundibulum	1	1	20			
Dendrobium phalaenopsis	1	2	25	2	3	20
Dendrobiums	2	2	25			
Dendrobiums bigibbum & phalaenopsis	2	1	21			
Dendrobium tetragonum	2	4	19			
Dendrobium, The Genus	1	4	9	2	1	15
	2	2	26			
Dendrobium Wardianum	2	1	23			
Disas	2	3	23			
Do Orchids Think?	2	3	16			
Editorials:						
An Experiment	1	3	5			
A Plea to the Amateur Hybridizer	2	4	3			
Join an Orchid Society	2	1	3			
Observation and Experiment	2	2	3			
Our Initial Number	1	1	5			
Protection for our Native Species	2	3	3			
Something Unique	1	2	5			
The Charm of the Species	1	4	5			
Editor's Note	2	1	20			
Editor, The	2	1	12			
Electrical Heating of Glasshouses	1	2	13			
Epidendrums in Australia	2	1	27			
Few Stray Notes on Orchids, A	1	1	13			
Flower Photography	2	2	9			
How to Hybridize	1	3	5	1	4	15
Information Bureau:						
Cymbidium canaliculatum	1	3	10			
Cymbidium grandiflorum	1	2	20			
Dendrobium aemulum	1	3	10			
Miltonias	1	2	19			
Thunias	1	3	9			
Vanda coerulea	1	2	20	1	3	9

	Vol.	No.	Page	Vol.	No.	Page
Inspection of Collection of President of the Orchid Society of N.S.W.	1	4	17			
Inspection of My Own Collection (Dr. C. H. Jaede)	2	2	12			
Inspection of Some Colombo Collections	2	2	21			
Letters Received, Some						
Dr. E. Soysa, M.B., B.S. (Lond.), M.R.C.P. (Edin.), M.R.C.S. (Eng.), General Secretary of the Orchid Circle of Ceylon	1	1	6			
Dr. R. S. Rodgers, M.D., Ch.M., M.A., D.Sc., University of Adelaide	1	1	6			
John Laycock, President of the Malayan Orchid Society	1	1	8			
J. Wyer, Hon. Sec. of the North Queensland Naturalists' Club	1	2	31			
Sir Jeremiah Colman, Chairman of the Orchid Committee of the Royal Horticultural Society of London	1	1	7	1	2	7
	2	1	13			
Library, The	1	3	29	1	4	27
Liparis Simmondsii	2	1	14			
Mertilla Malayensis Fly, The	2	2	18			
Miltonias	2	1	5			
More about Dendrobium falcorostrum	2	4	11			
More about Rhytida Strangei	2	1	26			
Mr. Louis L. Sander	2	2	4			
New Menace to Cymbidiums, A	2	2	6			
North Queensland Orchid Hunt, A	2	1	24			
Note on the North Queensland Census	2	2	19			
Notes of an Amateur Orchid Hunter in Kenya	2	4	25			
Notes on a Rare North Queensland Orchid	2	2	19			
Notes on a Trip to Java	1	2	17			
Notes on Chlorophyl	1	3	12			
Notes on Nomenclature, Some	2	4	27			
Notice to Contributors	2	1	26	2	2	6
	2	3	29	2	4	26
Notice to Subscribers and Advertisers	2	4	30			
Odontoglossum grande	2	2	5			
Odontoglossums	1	3	17			
Odontoglossums and Genera	1	4	7			
Orchid Beetle, The	2	2	28			
Orchid Circle of Newcastle, The	2	3	28			
Orchid Culture in North Queensland	1	4	25			

	Vol.	No.	Page	Vol.	No.	Page
Orchid Display	2	2	24			
Orchid Growing in the Desert	2	4	21			
Orchid House and Cultural Conditions, The	2	2	29	2	3	5
	2	4	26			
Orchid Hunt in the Bellinger River Valley, An	1	4	11			
Orchid Hunt in the Lower Burrogorang Valley,, An	1	3	13			
Orchidologia Zeylanica	1	4	12			
Orchids and the Man	2	3	21	2	4	15
Orchids in Japan and The Philippines	2	3	13			
Orchids in Sumatra	2	3	17	2	4	13
Orchid Society of N.S.W., The	1	1	11	2	3	15
Orchids of Lord Howe Island	1	4	13			
Orchids of Thursday Island	1	2	27			
Orchid Tit Bits	1	2	26			
Our "Rock Lily"	2	1	7			
Our Terrestrial Orchids	1	1	21	1	2	21
	1	3	21	1	3	31
Plea for Correct Naming of Orchids, A	1	1	12			
Potting Dendrobiums	1	3	19	1	4	32
President of the Orchid Society of N.S.W., The	2	3	4			
President's Note	1	1	6			
Problem in Orchids, A	1	1	9			
Protection of our Native Species	2	4	22			
Raising Cymbidiums from Seed	2	1	9			
Rare Vanda Hybrid, A	1	4	16			
Remarkable Epidendrum, A	1	1	26			
Reminiscences	1	1	17			
Reports of Meetings	1	2	6	1	3	6
Rhytida Strangei	1	4	27	2	1	26
Sarcochilus, the Genus	2	3	9			
Specimen Plants	2	2	4			
Stanhopeas	1	4	21			
Taeniophyllum Muelleri	2	1	25			
Thus a Collection was Born	1	1	26			
Treatment of Newly Imported Dendrobium nobile	1	1	30			
Treatment of Newly Imported Dendrobiums	2	4	23			
Treatment of Newly Imported Orchid Plants	2	1	19			
Trip to Papua and Rabaul, A	1	3	32			
Tying of Orchids	2	4	6			
Vandas	2	2	7	2	4	7
Vanda Watsonii	1	3	20			
Visit of Mr. E. W. Cooper	1	2	11	1	3	23
	1	4	20	2	1	22
Visit to the Newcastle Growers, A	2	3	25	2	4	9
Watering Orchids	1	4	28			
Wood Lice and Other Pests	2	4	29			
Zygopetalum Mackayii	1	3	24	2	2	20

AUSTRALIAN ORCHID REVIEW

Volume 1 January, 1936 No. 1

●

Contents

Sarcochilus Hartmannii 4
Editorial 5
President's Note 6
Letter from Dr. R. S. Rodgers 6
Letter from Sir Jeremiah Colman 7
Letter from John Laycock 8
A Problem in Orchids 9
The Orchid Society of New South Wales 11
A Plea for Correct Names of Orchids 12
A Few Stray Notes on Orchids 13
Aids to Orchid Culture 16
Reminiscences 17
Information Bureau 19
Dendrobium Infundibulum 20
Our Terrestrial Orchids 21
Cattleyas and Allied Genera 22
Two Uncommon Cymbidiums 23
Thus a Collection was Born 26
A Remarkable Epidendrum 26
Cool House Orchid Culture 27
Letter from Dr. E. Soysa 28
Treatment of Newly Imported Dendrobium Nobile 30

Subscription: 6/- per year, post free.

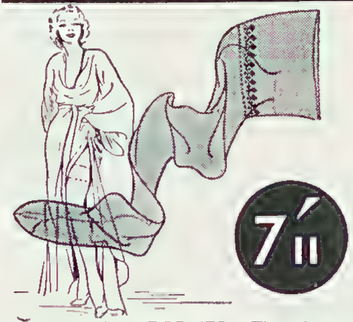
Beautiful Hosiery by HOLEPROOF

● This is a delightfully complete range of hosiery and in it you will find an appropriate style for every occasion.

SHEER LOVELINESS

Captivating SHEER LOVELINESS Perfect combination of loveliness and durability 5/11

GAY DECEIVER



Exquisite GAY DECEIVER—The aristocrat of all sheers 7/11

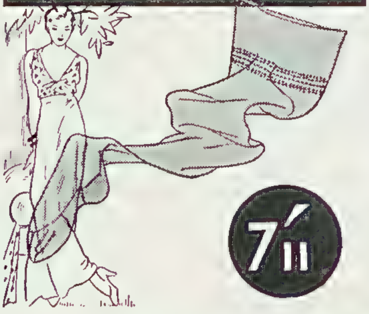
HEART'S DELIGHT

Charming HEART'S DELIGHT—the most beautiful stocking in Australia . . . 12/11

INTEGRITY

Famous INTEGRITY (888)—A revelation in modern service weight stockings . . 6/11

SINCERITY



Inimitable SINCERITY—The best-wearing, best looking service-weight in Australia 7/11

ADURABLE

Popular ADURABLE—A durable, adorable service weight for value-minded women 5/11

Eleven Selected
COLOURS

ANGELSKIN—
A warm pink beige

BLUETONE—
A blue stone shade

DAWN—
A neutral beige tone

EVENING—
A flesh toning

GLAMOUR—
A grey-brown

HONEYDEW—
A skin shade

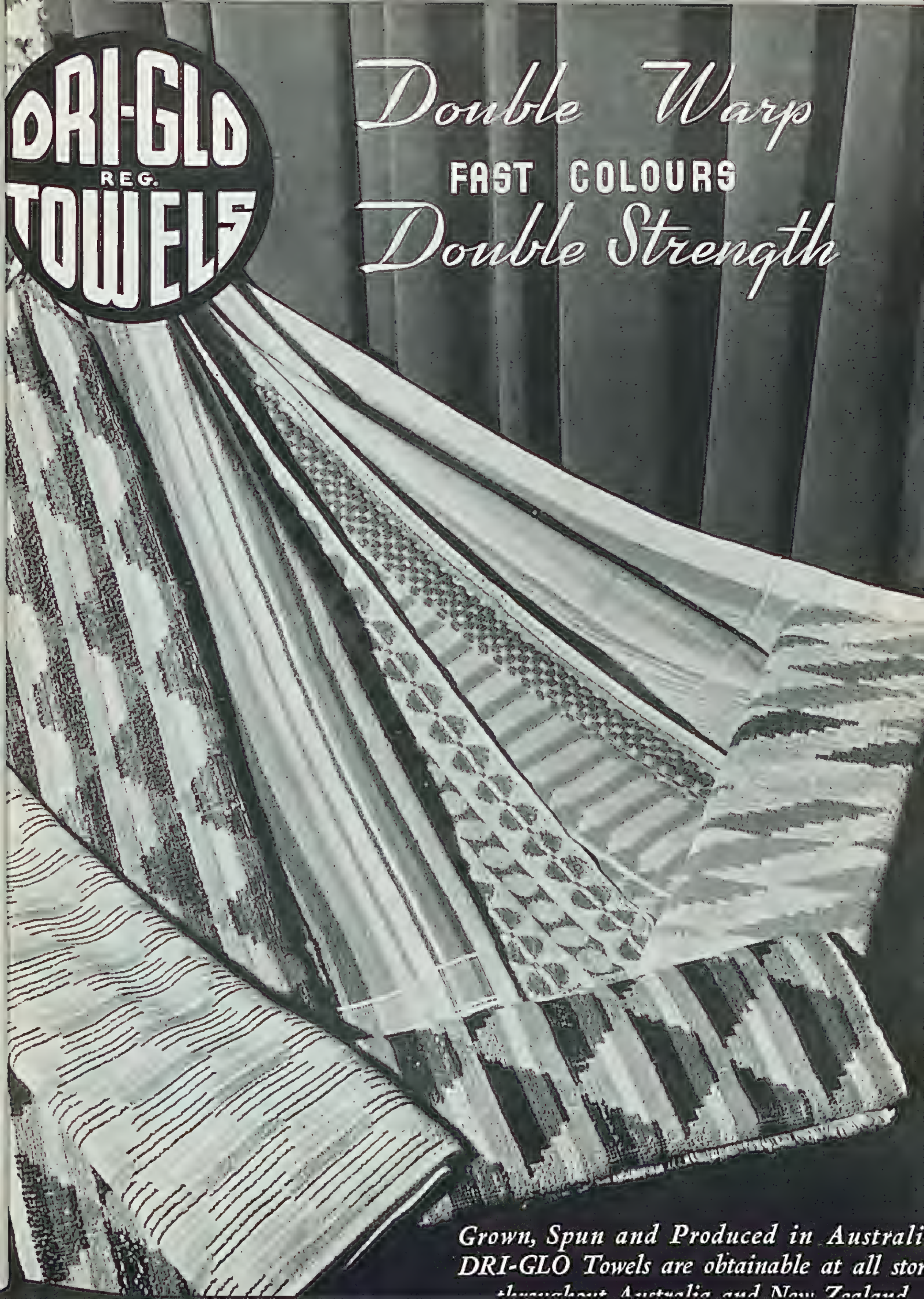
NOON—
A rich suntan

SUNSHINE—
A blonde nude shade

SILHOUETTE—
A mauve-brown toning

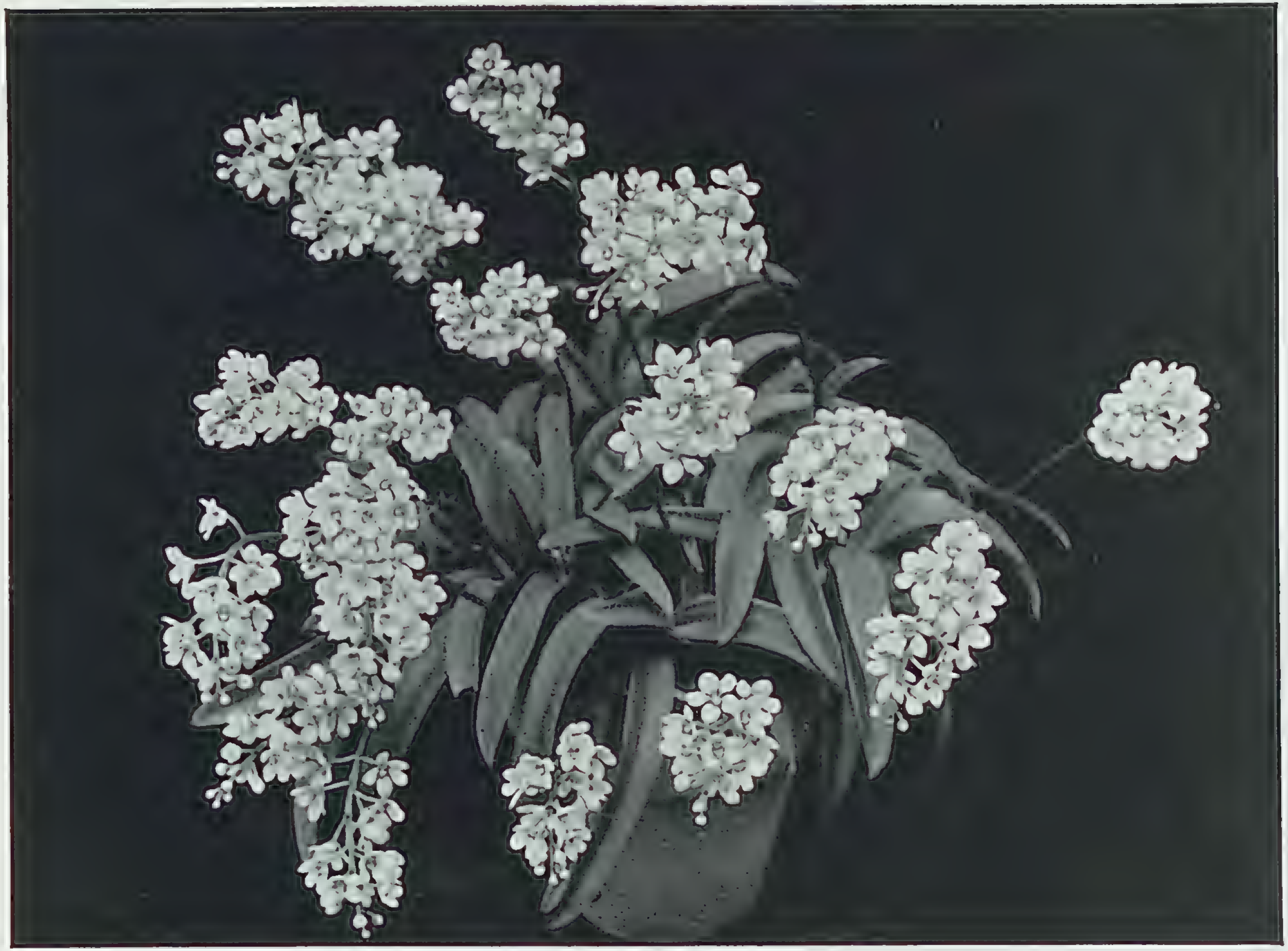
STARDUST—
A light beige tone

ZEPP—
An in-between grey



Grown, Spun and Produced in Australi
DRI-GLO Towels are obtainable at all stor
throughout Australia and New Zealand

SARCOCHILUS HARTMANNII, F.v.M.



Sarcochilus Hartmannii, a native of Queensland and Northern N.S.W., is becoming extremely rare, but fortunately is now nationally protected in both States. The subject is a perfect example of a well-grown "type form"; mentioned in "A Problem on Orchids" by Rupp. The minute spots can be readily discerned with the aid of a hand lens, thus distinguishing it from the pure white variety. The plant was collected and grown by W. Schmidt, of Turramurra, and photographed by H. J. R. Overall, of Manly.

Australian Orchid Review

Editorial

Our Initial Number

● When the Orchid Society of New South Wales was formed, some sixteen months ago, it set out, as its principal objective, the advancement of all that pertains to Orchids, aiming at increasing the number of those persons interested. It was realised at the time that these major objectives would involve some form of wider publicity, so that members and others interested in all parts of Australia and beyond could be kept constantly in touch with one another and their achievements. The constitution of the Society provided for the institution of a periodical journal and the formation of a library. The committee of the Society has accordingly given early consideration to this objective, with the result that the first issue of the Journal has now been produced.

● While the publication must be its own justification for its appearance, the committee has endeavoured to produce it on lines which it considers will best serve the scientific and general interests of those engaged in the study, discovery, propagation and development of Orchids. Its success in future will depend on the measure of support it merits, and the interest of members who may from time to time be sufficiently interested to make contributions to its pages.

● One of the most encouraging features of its initial publication is the fact that it has already received the interest and goodwill of Scientists and Orchid-lovers in world centres, as far apart as London and Singapore, Colombo and Adelaide. Not only is this evidence of the extraordinarily wide and international interest in this fascinating study, but it indicates how quickly interest is kindled and goodwill engendered by the activities of any Society which is making a sincere endeavour to contribute something to the study of Orchids and stimulate a wider interest in this branch of Biology.

It is typical of the absorbing interest that is created by a subject of this nature, that well-wishers from other parts of the world should strike such diverse notes in referring to various points in which common interest develops.

Sir Jeremiah Colman, writing from Gatton Park, Surrey, draws attention to the interesting possibility of Australia, a comparatively new field, and with its vastly different climatic conditions.

Dr. E. Soysa, from Colombo, makes an intimate contact with us by an appreciation and obvious knowledge of our Australian Orchids, incidentally drawing attention to the valuable results that may be achieved by national protection of Orchids.

Dr. R. S. Rodgers, of Adelaide, reminds us of the remarkable economic discoveries that have been a direct result from the scientific study of Orchids.

Mr. J. Laycock, of Singapore, gives us an encouraging glimpse of the beneficial results of hybridisation.

To all of these eminent gentlemen we are grateful for their kind expressions and good wishes for the success of this Journal. Their letters are published in these pages in full, and it is one of the most gratifying results of the committee's work in producing this first issue that it should have already interested eminent men in all parts of the world, and has been launched with such sincere expressions of goodwill from them.

● The Journal will be published quarterly, and it will be the aim of the Society to distribute it as widely as possible in furtherance of that which is regarded as the primary object of the organisation—the advancement of all that pertains to Orchids. To this end, while the Journal is the official organ of the Orchid Society of New South Wales, the committee will welcome co-operation and contributions from members of any other similar Society.

President's Note

● With this issue, the "Orchid Review" makes its first bow to the flower-loving public, and we trust that its audience will call for an encore.

The Orchid Society of N.S.W., of which this publication is the official organ, has been in existence for a little over a year, and its success is ample testimony of the enthusiasm which exists in regard to the growing of orchidaceous plants, whether indigenous to Australia or elsewhere.

Those responsible for the "Review" hope to make it a compendium of information for Orchid growers, not only in this State, but in the whole of Australia, and welcome articles to that end. Practically all the literature available in this country relating to Orchids is written with reference to conditions obtaining in England; which differ greatly from those existing locally. The hot, dry summer in Australia calls for treatment often entirely different from that suited to the cool, moist climate of Great Britain; and the sponsors of this publication feel that the need has arisen for expression, in concrete form, of the experience of Orchid growers with reference to local conditions.

We would ask our members to remember that Rome was not built in a day, and that this, our first effort, is put forward for their helpful criticism, and, if willing, their appreciation.

—H. F. MARKELL.

Letters of Goodwill

Dr. R. S. Rodgers of the University of Adelaide's Letter

● For the first issue of this Journal I have been asked to write a foreword, "however brief." To such a graceful compliment there can, of course, be only one response.

One naturally asks, to what class of reader will such a publication appeal? There will probably be the business man, who will regard it as of occupational interest. Then there will be the grower, who loves his garden for its own sake and desires to exchange views on matters of horticultural technique; but I take it that the majority will comprise that large and ill-defined body of people, young and old, rich and poor, trained thinkers or indifferently educated, who seek a restful, scientific hobby; which will provide them with an interest, not only under restricted circumstances, but one which may be exercised individually or collectively and irrespective of time and place.

Always a strong advocate for a scientific hobby and an ardent orchidologist for more than half a century, I know of none more delightful and satisfactory.

From whatever aspect it is approached, it fascinates and enthrals, it entices and repulses. At one moment it exalts its devotee with a sense of profound knowledge, only again to plunge him in despair at his abysmal ignorance. The parallel is obvious.

Having cast his lot, he is enslaved, and becomes a permanent student of the innumerable problems with which he is confronted by these uncanny plants. In this school he learns humility, and perchance acquires wisdom.

Though usually regarded solely as a branch of pure science, surprises of an economic nature sometimes await the worker in orchidology. Nothing, for instance, has been more unexpected than the application of some of its remarkable lessons to the important field of Forestry, where an association has been found to exist between trees and certain fungi, similar in character to that which was first studied in the life history of the Orchid. In both cases there is in vogue a system of barter in food constituents between the higher plant and the fungus, which is essential in the economy of each. A similar relationship has its analogies in the animal world, and is of special interest in the study of such biological problems as immunity, tolerance and resistance in disease. All of these have their parallels in the mycorrhizal life of the Orchid.

No special demands in the way of technical training are required from the ordinary student in this branch of science. Some of its greatest exponents, such as Lindley, Rolfe and Schlechter, have been gardeners. The only essentials are honesty and accuracy of observation. The trained mind will know what value and application to attach to any such observation.

It is an inspiring thought that any ordinary individual is capable of adding, however slightly, to the sum of human knowledge; and at the same time to provide himself with a perennial interest, which will carry him through the declining years of his life.

As the Orchid is cosmopolitan in its distribution, such a hobby may be indulged in any

(*Continued on page 25*)

Sir Jeremiah Colman in one of his world-famed Orchid houses at his home in Gatton Park, Surrey, England.

The Chairman of the Orchid Committee of the Royal Horticultural Society of London's Letter

● I hear with much satisfaction of the foundation of the Orchid Society of New South Wales and the publication of the "Australian Orchid Review," and have pleasure in contributing a foreword. It happens that it has been my happy province to give encouragement and help to overseas growers, and to urge a larger interest in the study and collection of Orchids both at home and abroad. There is very little distinct evidence of an increased interest in this family of aristocrats, largely, I think, because it is at long last recognised that Orchids are not reserved exclusively for the rich, that many of them are easy to grow, and that there is a field for study and application, particularly in the direction of hybridisation, which encourages the expectation of fruitful results. Phenominal advances have been made over a short period of years, and there is scope for further improvement.

Cicero wrote: "*Principium hoc: exitum evolvant alii*"—the beginning is this: the end will unfold differently—which I venture to prophesy will be found to apply to your enterprise, the sequence of which will very likely prove a revelation. "Advance, Australia," is an aspiration certain of fulfilment in the Wonderland of Orchids as in other spheres. When I made cricket a hobby, the cricket of Australia was not taken seriously. Now, Australian cricketers rival those of the Mother Country. So it may be with Orchids. We may hardly visualise Orchid Groups sent from Australia in competition with the wonderful Groups which are set up at our Shows here; and yet, one never knows what may be the opportunities of the future. We are able to consume Australian fruit and Australian butter; and it is not beyond possibilities that, with the enterprise of our shipping lines, or the development of our Air Service, Orchid Groups may at no distant date arrive in this country! I have myself put up a Group 3,800 miles from Gatton.

I have recently been able to give some assistance to your neighbours in New Zealand, and in Ceylon, and I express the confident hope that your Society and the Orchids may thrive, and give a full measure of pleasure and reward to those who are taking up this fascinating hobby.

My home at Gatton is not unknown in your Dominion, since there is in Queensland a town named after it; and gardeners who have received their training in my Orchid Houses, are making good in Australia. —JEREMIAH COLMAN.

Sir Jeremiah has been Chairman of the Orchid Committee of the Royal Horticultural Society since 1917, succeeding such prominent horticulturalists as Mr. Gurney Fowler and Sir Harry Veitch. The position is one which requires knowledge and tact, as there serve on the Committee prominent Amateurs, representatives of the leading Trade Houses, travellers, and the Editors of the "Gardeners' Chronicle" and the "Orchid Review," besides Sir Jeremiah being the intermediary between the views of the members of the Committee, and the views and interests of the Council of the Royal Horticultural Society, which are by no means identical. Sir Jeremiah's forty years' knowledge of Orchids and Orchid growing are naturally of value. His great experience as Chairman of prominent Companies, both public and private, and of public meetings, naturally render his services much sought after, and he has established friendship and authority amongst his colleagues. Incidentally, as Chairman of the Committee, he is responsible, with two others, for recommending Awards to the Groups exhibited at the fortnightly meetings of the Committee, which requires great judgment and knowledge.

The President of the Malayan Orchid Society's Letter

● As President of the Malayan Orchid Society I have been asked to write a foreword for the first issue of the "Australian Orchid Review." I do so with great pleasure, though conditions, of course, are very different in Australia from what they are in Malaya. Still you will be fortunate, if in the running of this Review you do not encounter much the same difficulties as others experience. The Editor almost always has to rely upon a few writers to contribute the reading matter, and after some time it becomes a little difficult for these few people to find very much new to write about. One very acceptable solution of this problem, of course, is to get notes about new hybrid Orchids, or species plants, concerning which no one can have written before. Unfortunately, the field in this direction is not very wide. During a number of years, we in Malaya, have hitherto only been able to describe two or three new hybrids of our own production. We now expect that in one or two years' time we shall have a great many more to deal with. New species, of course, are even more rare to find. If all the members of your Society do their duty, you should have no difficulty in producing a most interesting Review. I hope they will.

Cultural notes are always appreciated and are most useful. We are starting the experiment next year of having one or two coloured plates in each number of our Review.

The climate of Malaya is, as you know, rather moist, about 120 inches of rain a year; on the whole, pretty evenly distributed throughout the year, but with one period of three or four months wetter than the rest of the year. So we find that plants coming from dry countries are very rarely successful here, and Australian Orchids are disappointing. If they grow, they will not flower. I have had plants of *Dendrobium speciosum* growing strongly for several years, but never a flower. I still have one clump of *D. undulatum* from Northern Australia, but it flowers with great reluctance, in contrast to the plants of *D. undulatum* I have from the Moluccas. Perhaps our Orchids are more amenable "down under" than yours are here. Possibly judicious hybridising is the most satisfactory way of producing a fine range of local flowers. Whether the effort results in more floriferous plants, or greater beauty of flower, is uncertain in the case of each hybrid; but one quality seems constant to local hybrids, namely, the ability to feel at home in the climate of origin. For instance, *Oncidium luridum* is certainly rather stubborn and difficult here, and one *O. Lanceanum*, is not easy to grow; but we now have some small plants of a locally raised hybrid, *Onc. x Lanceanum x Onc. luridum*, which seem to allow us to take almost any liberty with them. They have not yet flowered, but one at any rate should flower very soon. We have not yet heard much about Australian raised hybrid Orchids, but I hope your new "Review" will tell us more about this most interesting work.

I am sure the members of our little society will occasionally assist you with articles for your "Review," especially if you will indicate the kind of topic you desire. We envy you the ability to produce one number every three months, and we hope you will be most successful.

—JOHN LAYCOCK.

A Problem in Orchids

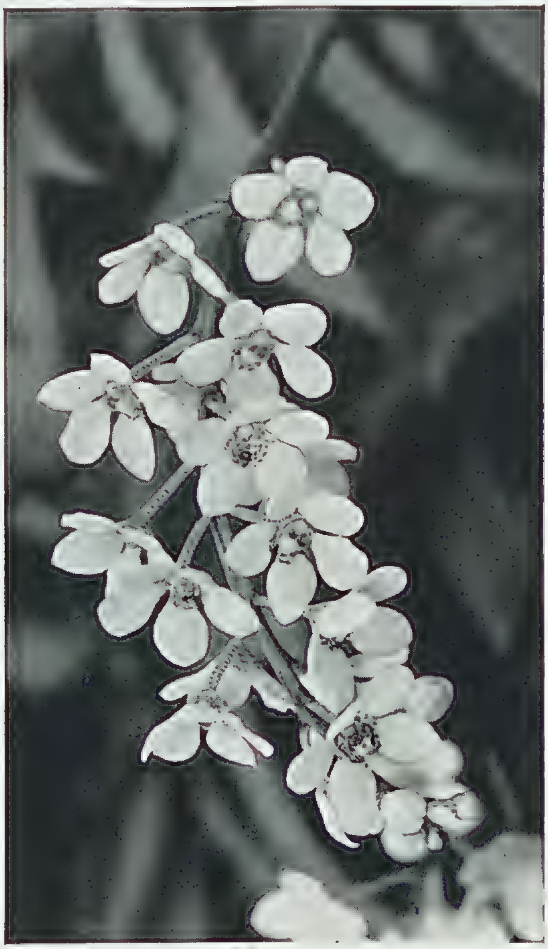
THE REV. H. M. R. RUPP, B.A., *Woy Woy, N.S.W.*

The problem may be stated in four questions: (1) What are the relations between *Sarcochilus Fitzgeraldii*, F. v. M., *S. rubicentrum, Fitzg.*, and *S. Hartmannii*, F. v. M.? (2) Was F. M. Bailey right in absorbing *S. rubicentrum* into *S. Hartmannii*? (3) Is the dimorphous plant generally accepted as *S. Hartmannii* really that species? (4) Can any one say where the orchid figured in Fitz. *Austr. Orch.* 11, vol. 1, under the name *S. rubicentrum*, may be found to-day?

In discussing this problem here, it will save space if I designate the three plants by the initial letters of their specific names: F. = *S. Fitzgeraldii*; R. = *S. rubicentrum*; H. = *S. Hartmannii.*

F. and H. (assuming that we are dealing with Mueller's species) are found in southern Queensland and northern New South Wales—H. having been recorded in the latter State quite recently. Fitzgerald gives "Cairns" as his locality for R.. Bailey (Q.Fl. V. p. 1551), though including R. in H., makes no allusion at all to Cairns.

F. is a prostrate, branching plant favouring deep, shady ravines, where it scrambles over rocks to a length of as much as 4 feet. It has been reported in sunny situations, but these may originally have been sheltered. My experience is that F. is not at all difficult to cultivate, provided it is not given much exposure to direct sunlight. The leaves are long and narrow, stem - clasping, channelled, and rather flaccid.



Sarcochilus Hartmannii—the type form—a raceme of the plant illustrated on page 4

H. is an *erect* plant with comparatively short stems, growing on rocks where it can enjoy plenty of direct sunlight. The leaves are thicker and broader than those of F. more deeply channelled, and almost completely concealing the stems, except where old leaves have dropped off.

According to Fitzgerald, R. has the erect habit of H.. The leaves also resemble those of the latter, but appear somewhat less robust.

Turning to the inflorescence; F. produces numerous very dark flowering-stems, bearing from 3 to about 16 flowers, distributed along the upper third (or sometimes half) of the stem. The flowers may reach 3½ cm. in diameter, with all the perianth segments widely expanding. The colour-scheme of the perianth,

The pure white form of Sarcochilus Hartmannii

in white and crimson or maroon, is variable. The type form is said to be "snowy white, spotted with rich lake or maroon." This being so, I doubt if the type is often found. In nearly all the flowers I have seen during twenty-five years, the white is faintly suffused with pale pink. The spots are commonly—but not always—confined to the narrow lower half of each segment. Sometimes they are replaced by heavy blotches, or the lower half of the segment may be entirely crimson or maroon. There is also a form with the perianth wholly crimson lake, blotched with deep maroon. The labellum is relatively small (but larger than in R. or H.); with a large blunt spur. The mid-lobe is, in my experience, rarely as prominent as Fitzgerald shows it (*Austr. Orch.* v. c.), and is more usually represented by a yellow-coloured swelling. The spur is sometimes banded with red or orange markings. The disk has a large bifid yellowish gland in front, and a smaller white one behind.

Fitzgerald shows R. with flowers smaller than those of F., similarly distributed on a *pale green* stem. The perianth is white with a number of sharply-defined maroon spots on both sides of the lower half of each segment. The labellum is very small, with an orange band across the spur and a small yellow mid-lobe above it. The disk has a large anterior gland, deeply bifid, and a smaller one, almost completely divided, at the base.

These characteristics agree well with Bailey's description of H. But the trouble is that they do *not* agree with the characteristics of the plant which most of us have accepted without demur as H.. Of this plant, at least two varieties are known: one with small pure white flowers, devoid of spots, and the other having white flowers with a ring of maroon spots around the centre—i.e., almost at the base of the segments. In both forms the flowers are crowded towards the top of the stem, and the perianth segments are very broad. The details of labellum and column are identical—but not with those of R. The labellum is very small indeed, and there is no coloured band across the spur. The disk has a *solitary* concave, heart-shaped gland near the middle. The column is not "spotted with red," but its very long foot is blotched with that colour, or wholly red.

I find it difficult to suppose that this plant is not the real S. *Hartmannii;* but I cannot, so far, reconcile it with either S. *rubicentrum* or Bailey's description of *Hartmannii.* The former may be an intermediate between *Fitzgeraldii* and *Hartmaniis* but if so, it seems to me nearer to F. than to H.. If living plants could be found in full agreement with Fitzgerald's plate of R., the difficulty might be solved.

SARCOCHILUS FITZGERALDII
Bellinger River Valley, N.S.W.

The Orchid Society of New South Wales

L. F. HAWLEY

● The Orchid Society officially came into existence on August 7, 1934. The membership of the Society now is very close to the century mark, and so that those who follow in years to come may learn—if they are interested—of how the Society originated, this article is written.

Early in 1931, N. S. F. Macdonald, of Summer Hill, and J. Bisset, of Abbotsford, came together and as a result of their association it can be said the Society owes its origin. Both at the time were growers in a very small way. Later, C. Cambourn, of Five Dock, became acquainted with Macdonald and Bisset, and occasional discussions pertaining to the culture of Orchids amongst these enthusiasts soon developed into regular weekly meetings at Macdonald's Surgery.

The next to join these gatherings were H. Trinter and L. F. Hawley, both of Summer Hill. The meetings were held every Tuesday evening, and at the conclusion, Macdonald's collection was inspected and any progress or deterioration duly noted. Visits to one another's collections became a recognised practice, and the friendly criticism thus engendered did much to increase the knowledge and sustain the interest of this small band of enthusiasts. Later, T. H. James—the present Honorary Secretary—and G. Hermon Slade became interested in these meetings, and it soon became evident that the time was fast approaching for the formation of an Orchid Society.

Actually, the subject was discussed at a number of meetings, but nothing tangible was done until July 3, 1934. On this date, Mr. Bisset invited a number of growers to his home at Abbotsford. Obviously those present were keenly interested in the culture of Orchids, and, after Orchid topics had been freely discussed, Dr. Burstal proposed that the time was opportune for consideration to be given to the formation of an Orchid Society, and it was his insistence upon something more definite than an occasional friendly meeting that actuated those present to heartily support the Doctor in his suggestion that a Society should be formed in New South Wales. A provisional committee was thereupon formed, and notices of a proposed meeting were duly despatched to all known to be Orchid growers to those present, to attend a general meeting at T. H. James' home in Longueville. The meeting was held on July 16, 1934, and the question of the formation of the Society was formally discussed. At this meeting a provisional committee was appointed to draw up rules and regulations, and for this purpose the committee met at Dr. Burstal's home the following day.

The first general meeting was held at T. H. James' home on August 7, 1934, when the Orchid Society of New South Wales officially came into being. The following were elected to become the first officers of the Society: President, His Honour Judge H. F. Markell; Vice-President, Dr. C. A. Jaede; Vice-President, Rev. H. M. R. Rupp; Hon. Secretary, T. H. James; Hon. Treasurer, L. F. Hawley; Committee, Dr. A. C. Burstal and S. C. James.

For some few months the meetings of the Society were held at the home of T. H. James, but as the membership increased additional accommodation became necessary, and His Honour Judge Markell kindly made a room available in the city. However, the membership still increased, and further accommodation had to be found. A portion of the Sydney School of Arts building was then used for a few meetings, until the Society transferred to its present well appointed home in Phillip House, Phillip Street, Sydney.

The first annual meeting of the Society was held on August 29, 1935, and replaced the usual monthly meeting. The function was held the State Shopping Block, and was of a semi-social nature. The attendance was large and enthusiastic, the accommodation being taxed to its fullest. At the meeting it was proposed to publish a Journal, and this has now become an accomplished fact. The first annual report of the Society was read and considered. Subsequently the President suitably addressed the members, covering the whole of the activities of the Society, and also dealing with the culture of Orchids generally. Vice-President, the Rev. H. M. R. Rupp, and Mr. E. A. Hamilton also made an address to the report. The room was beautifully decorated with Orchids. The tables were arranged U shape, and the plants displayed along the centre. Several specimen plants of *Cymbidium* and of *Dendrobium Nobile* were exceptionally well grown and carried upwards of one hundred blooms on each plant. The President, Judge Markell, Mrs. E. M. Mitchell, C. Gosper, J. Bissett, H. Taylor, and numerous others brought along exhibits, which included *Den. Nobile, Den. Xanthrocentrum, Den Thwaitesii and Den. Findleyanum*, various *Cymbidium* species and hybrids, *Cypripediums, Cattleyas, Brasso-Cattleyas, Laelio-Cattleyas, Vandas*, and many other Orchids.

After the annual report had been presented and adopted by the meeting, the election of a committee for the ensuing year was proceeded with. As the whole of the standing committee had been re-nominated, with the exception of Dr. Burstal (the demands of his practice necessitated his standing down) and as there were no further nominations, the old committee was duly re-elected, with the addition of E. A. Hamilton, C. Gosper, G. Hermon Slade and R. M. Stewart.

Since its first meeting, the Society has flourished beyond all expectations, and its official display at the Royal Horticultural Society's October Show in the Sydney Town Hall was greatly admired, and received much publicity. The Society, after only a little over a year in existence, has a substantial credit balance at the bank, and has received official recognition by numerous similar bodies throughout the world. The Orchid Society of New South Wales has thus been the means of making closer alliance and co-operation between those growers and lovers of Orchids who attend its meetings and who are on its correspondence list, and has fully justified the endeavours of the pioneers of the Society, who can justly claim to have builded well.

A Plea for Correct Names of Orchids

E. J. BEARD, *President Queensland Orchid Society.*

● When the Queensland Orchid Society was formed by an enthusiastic body of Orchid growers, the main object in view was to educate its members by lectures, monthly non-competitive displays, and the study of the correct methods of growing these beautiful flowers. We very soon found amongst growers quite a few who had no knowledge of the correct botanical names of the varieties they were growing. In most cases they referred to them by "nick" names, such as Spider Orchid, Pencil Orchid, King Orchid, and so on.

Our members decided to encourage the giving of the correct botanical name always and to eschew any other name. When the boy is christened and given the name of William, it isn't long before his school mates dub him as "Bill," but I do not think this habit should commend itself to the more sedate Orchid grower.

The beautiful *Dendrobium* found usually growing on box trees and named *aemulum* used to be called in Queensland "Box Tree Orchid." *Dendrobium teretifolium*, so named by reason of its terete or round shaped leaves, was once called the "Pencil Orchid"; but I pity the party who tried to write with a leaf unless he first placed some lead in it. Our giant *Dendrobium speciosum* has been called the "Rock Lily"; yet in Queensland it can be gathered by the thousand growing on tree trunks like the true epiphyte it is. During a period of many years, seeds have germinated on rocks, and I have seen many so growing, and that no doubt accounts for the "rock" portion of the nickname; but why "Lily," which is quite another group of plants?

No, I am not in favour of names other than those bestowed by world recognised botanists, and I enter a plea for the correct names to be used on all occasions, and that the use of anything else be discouraged.

If this modest plea can be helped by the "A. O. Review," which I wish every success, I shall feel very grateful.

HE DIDN'T READ IT THAT WAY

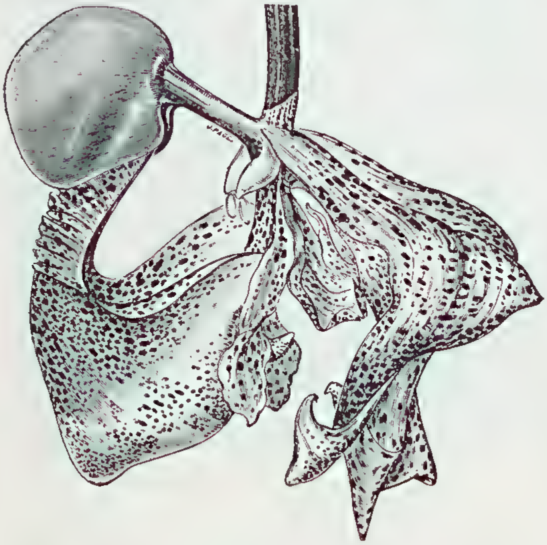
Wife: "Where are the orchids; didn't you bring any?"

Husband (returning home from the monthly meeting): "What orchids?"

Wife: "The notice said, 'Distribution of Australian Orchids by Rev. H. M. R. Rupp.' I thought you were sure to get some."

A Few Stray Notes on Orchids

E. J. BEARD, *President of the Queensland Orchid Society.*



CORYANTHES MACULATA

This is one of the most remarkable wonders of the plant world—even for an Orchid. The flowers are produced underneath the plant, below the roots; and they circulate a liquid around the bucket-shaped lip via the glands which are shown in the illustration. This plant is a natural home for thousands of stinging ants, providing them with shelter; and in return receiving adequate protection against any intruder. It is not uncommon in Central America; but because of its habit of living only among the very topmost branches of tree; and of the fiery ants, only very few are collected.

"Coryanthes maculata" means spotted hood flower.

● The Orchid family is a very large and highly specialised one, comprising over five thousand species; exclusive of the many hybrids that have been raised during the last three decades. It is very widely distributed, being particularly abundant in most of the warm and temperate parts of the globe. They are not plentiful in cold and very dry climates, yet a few have been found within the Arctic Circle. In the warm and moist situations within the tropics, especially on the mountains, many fine species are found. Many sorts have been discovered on the Andes and the mountains of India and Malaya; but only a few, comparatively, in tropical Africa. Many of the species are epiphytes; and these are mostly confined to the tropics where they have been literally driven up into the trees in the great forest regions, because of the dark and uncongenial conditions of the forest floor. Here on the trees they have developed a number of curious adaptations which fit them for the new conditions of existence. Terrestrial species are found over the whole area occupied by the order and are abundant in Australia and South Africa; and are also well represented in Europe and the temperate portions of North and South America.

The family of Orchids owes its peculiarity largely to the irregular development of the flower, which takes the form of suppression of some of the parts and the union of the remainder into two compound organs, known as the column and the lip or labellum; giving the flower a high degree of complexity. So great is this complexity in some cases that it becomes very difficult to say just what some of the parts are. Take *Coryanthes macrantha,* for instance. The large membranous bodies on one side of the flower consist of the sepals and petals, the lateral sepals being very large and curiously rolled back and twisted at the apex, with the much shorter dorsal sepal between them, and near by the narrow and much curled petals. On the other side is a curious bucket-like arrangement, something like a milking pail, suspended on a nearly horizontal arm; at the angle of which is a helmet-shaped body from which the genus takes its name, literally, "helmet flower." These parts collectively form the lip. What may be termed the handle of the pail, underneath the helmet, bears a number of deep transverse ridges. Continuous with the pedicel of the flower is the column, rather hidden by the other parts, but its apex is situated just above one side of the bucket, leaving a narrow opening between the two. At the base of the column, and just over the bucket, may be seen two horns. And now comes the remarkable economy of the flower. When the sepals expand, those horn-like bodies are seen to be glands, which exude liquid, drop by drop; and this collects in the bucket beneath until it is full up to the narrow opening just mentioned. This flower possesses a strong perfume and quickly attracts a certain kind of bee which lives in the same district (Caracas). These bees alight on the fleshy parts of the flower, and fall or jostle each other into the water beneath. Now the sides of the bucket are very slippery and the bees are unable to climb out that way, but espying the narrow opening, they make for that; and the lip being slightly pliable, they force their way through. The first bee to escape invariably brings away the pollen masses on its back and hurries off to another flower, where the process is repeated. This time the bee has the load of pollen on its back; and on again reaching the opening and forcing its way through this pollen comes in contact with the stigma, which is also close to the opening, and is sufficiently viscid to hold it there, while the bee escapes, and thus fertilisation is effected. Here is a remarkably complex set of arrangements to serve such an apparently simple purpose. The habits of the flowers are identical in cultivation in our Orchid houses, but unfortunately the bees are absent.

Some extraordinary ideas exist regarding Orchids. The species found growing on trees are believed to be parasites, and others are thought to exist by devouring insects and other living things; and have blooms that are particularly weird and uncanny, and not the beautiful flowers that we know them to be. Most of these old ideas are slowly expiring, yet a great deal has yet to be learnt by the non grower of this remarkable family.

There are, of course, some Orchid flowers that are of extraordinary shapes and blends of colours, and again there are a few that exude most objectionable odours, but these are rare. Whilst we can admire the rose and the gladiolus and the many other garden beauties of the flower world, it is to the Orchid that rightly belongs the title of the Aristocrat of Flowers.

It is a common belief that all Orchids come from a hot stuffy climate and that they cannot stand cold. Although this may be fairly true regarding some of the species indigenous to equatorial regions and not possessing pseudobulbs, it certainly does not apply to all Orchids. Many of the species require the coolest conditions possible, and in a climate like Queensland it is hard to keep such species alive; and foolish indeed to import them unless they can be kept at a temperature that never exceeds, say, 60 degrees or 70 degrees at the outside. It could not be reasonably expected that an epiphyte found on a tree on a mountain fourteen thousand feet above sea level would do well if tried at a few feet above sea level. In like measure, a ground or rock Orchid found in a gorge with cold spring water trickling over it, could not be expected to relish a Queensland hot wind in summer with the thermometer nearing 100 degrees. And so growers find that by judicious selection and studying the natural conditions of the plants, that they are able to build up their several collections with species and their varieties so that they can get a maximum of pleasure and a minimum of disappointment.

There was a time when the cultivation of Orchids was the privilege of the few; but now that these plants are more plentiful and their habits better known and understood and prices are within reach of most pockets, the growing of Orchids has become a very extensive hobby; and where growers could, sixty or seventy years ago, be counted on the hand, their numbers now exceed many thousands. In England and the Continent and in America, professional firms spend large sums of money in the importation and cultivation of many of the species, some of the firms having glass houses that cover acres of land and involve an immense sum for labour and the daily care of the plants under conditions of climate that are hardly as congenial as that enjoyed by growers in our sunny Queensland.

To successfully grow Orchids, it is essential that the grower should study as far as possible, the natural conditions the plants enjoy in their native state. Helpful advice in this regard can be obtained by consulting Orchid books, prominent amongst which are those by B. S. Williams and "Sander's Orchid Guide." Whilst it is important that the temperature in which they naturally grow should be studied, it is equally essential to know whether the particular species being considered grows in the sun or shade, or whether it is growing in a dense jungle or on a high mountain. Equally important is the knowledge what the rainfall is in its native habitat; so that when armed with these important facts the grower may endeavour as far as possible, to give the plant conditions similar to those enjoyed by it when growing naturally. It may not be possible to carry this out in its entirety; but patience and intuition will help the average amateur to find just what position to give the plant in his bush-house or glass-house, as the case may be.

Whilst many of our *Dendrobiums* thrive fairly well in Queensland when tied on to the trunks and branches of Frangipanni and Poinciana trees, I would not recommend this for most of the species grown here. It is important, therefore, that the orchids should be properly housed. After many experiments it has been found in my experience that a close walled house with open top partially shaded with battens and covered with half-inch wire netting has given best results. The necessity for the closed walls instead of battens is to keep out draughts and conserve moisture in the house during our hot drying winds, and the open or partly open top is to get the maximum of light and air. Of course, many varieties of *Dendrobiums* and *Vandas* thrive best when grown right out in the

DENDROBIUM ARTEMIS

A fine hybrid Dendrobium of good colouring. Its parents are Nobile and Aureum, the latter parent twice. The influence of each is very interesting for, although it has inherited the shape and floral character of aureum, the colour and vegetative growth are mainly like nobile.

sun, and need not, therefore, be kept in a house. Queenslanders are most fortunate in that whereas our climate lends itself to the growing of Orchids in open-topped houses, such a policy would prove disastrous in some of the southern States and New Zealand, where glass-houses are necessary.

In no branch of horticulture has such progress been made during the last half century than with the cultivation and hybridisation of Orchids. So many crosses have been made and so many seedlings have been raised and flowered successfully that the naming and reclassifying of the seedlings has become almost bewildering. It was somewhat of a task even when *Cattleyas* were crossed with *Cattleyas,* and so on through the other species, to keep a record of the names given to the resultant seedlings; but with *Cattleyas* crossed with *Laelias, Brassavolas, Sophronitis, Epidendrums,* and the seedlings upon flowering being again crossed and recrossed, the problem becomes almost a crossword puzzle. It is difficult now to keep track of the many hybrids raised, which must be nearing the million mark; but what it will be in fifty years' time is hard to estimate. It was a practice years ago to sprinkle the Orchid seed upon the top of the parent plant, but that procedure has been superceded by more scientific methods that ensure immeasurably better results. In the *Cattleyas, Laelias* and allied species, and the *Cymbidiums,* remarkable crosses have been raised, and larger and more beautiful flowers and better colours and form secured. In the *Cymbidiums* especially, wonderful hybrids have been raised by crossing and recrossing; and we now have some lovely varieties of white, cream, yellow and pink in the lighter shades, and many colours in a darker vein. These beautiful hybrids possess all the lasting qualities of the parents, and it is not uncommon for the spray of flowers to last two to three months on the plant, or several weeks if cut and placed in a vase of water; provided the ends are cut every few days.

The growing of *Cymbidiums* should appeal to the beginner, as they do not require a glass-house in Queensland or New South Wales, and revel under conditions that would be fatal to some Orchids. An open fernery or bush-house is an ideal place to grow them, and as they flower in the winter when flowers are so scarce, they are most valuable. They require a compost of leaf mould with which is mixed some Osmunda or todea fibre and charcoal. Then add a little sand and a fair sprinkling of broken pots crunched into small fragments and a handful or two of old cow manure. Mix the lot together thoroughly and make fairly damp before potting. Although *Cymbidiums* are endowed with fleshy roots and require fairly large pots, it is a mistake to put the plants in oversized pots; for I find that they flower better when they are pot-bound. This genus is a great favourite in the southern States on account of the great variety amongst its hybrids and their value for cut flowers on account of their great lasting qualities.

The *Cypripedium* is another favourite for cut flowers. This is a terrestrial Orchid that seems to give best results in the compost I have recommended for *Cymbidiums.* Having no pseudobulbs, it must not be allowed to get too dry or it will be attacked by disease. It loves a shady damp situation, but a few of the species, especially *Insigne,* require more light. *Barbatum, Fairrieanum, Leeanum, venustum* and many others are doing well in Queensland, but interest is increasing rapidly in the bewildering array of hybrids that are being continually raised and which eclipse in shape and colour most of the original types.

I cannot close this article without referring briefly to the large family of Orchids which bears the imposing title, *Dendrobium.* Many of the Indian varieties are very beautiful and quite hardy to grow when given suitable conditions. I have seen a plant of *nobile* grown in Brisbane with over five hundred flowers on it. It was a truly glorious sight and the plant was growing in a five-inch pot. *Thyrsiflorum* is another very fine *Dendrobium*, equally as hardy as *nobile*. For two years in succession my best plant has given me over eleven hundred flowers. *Farmeri, Pierardii, Wardianum, Falconeri, chrysotoxum, densiflorum, formosum, Dalhousieanum, Dearii, Devonianum, fimbriatum* and *moschatum* are only some of the best imported species. But what of our own Australian natives? *Superbiens* is unrivalled in its class. Then there is *bigibbum* and the ever-popular *phalaenopsis*, from Cooktown. I would advise the beginner to make a start with some of these, and he will no doubt wish to add some of the smaller sorts like *Kingianum, delicatum, falcorostrum, fusiforme, speciosum, canaliculatum, aemulum, Johannis, tetragonum, linguiforme, gracilicaule, teretifolium, monophyllum, cucumerinum*, and others.

In potting *Dendrobiums*, do not use large pots for they do better in small receptacles. Half fill the pot with broken crocks, then stake the plant and fill the pot with tightly packed Osmunda or todea fibre. See that the last lead of the plant is not below the top of the pot and that the eye from which the next lead will come is not injured or covered with the potting material. When the roots begin to grow, water may be sparingly given, and when in full growth the plants will revel in an abundance of water.

Superbiens, bigibbum, phalaenopsis, canaliculatum and *speciosum* do best when grown in the sun. There are many other fine *Dendrobiums* that I have not named, but these can be included in a talk later on on *Dendrobiums*, when the peculiarities of some of the varieties may be referred to.

Aids to Orchid Culture

P. A. GILBERT

Slaked Lime

● As an aid to Orchid culture, I first became acquainted with slaked lime in "The Amateur Orchid Cultivator's Guide Book," by H. A. Burberry (first edition). Subsequent to being the possessor of this useful little handbook, I have noticed that both powdered charcoal and flowers of sulphur are recommended by writers on Orchid culture, but after having used in turn all three remedies, I now use powdered slaked lime only. As a germicide and fungicide for use in the Orchid house, I have found that slaked lime is invaluable. Lime or charcoal has no ill effect when either gets into the compost, but in many cases sulphur is decidedly harmful. Lime however, has a tendency to kill spaghnum moss; and where this is used for surfacing, it requires protecting when lime is used.

Prepare a supply from a lump of quicklime by slaking it in an earthenware vessel, with a little less than half its weight in water. After the chemical action has taken place, and the quicklime thus slaked has cooled down and dried off, crush it into a uniform powder with a rolling pin, when it is ready for use.

The orchidologist who has imported Orchids from other countries, necessitating a journey of several weeks, may have been disappointed in the condition of some of his plants. Perhaps the plants have sweated; probably they have made premature growths, brought about by prolonged confinement; or, on being spread out in the house to revive, frequently flower in desperation, through trying to adjust themselves to a rapidly changed environment.

In all instances, cut off the unseasonable growths with a sharp knife or razor and rub dry slaked lime into the wound. If the unseasonable growths are allowed to remain on the plants, they invariably damp off, the decay very often spreading into the old portions of the plants, while if newly formed buds are permitted to flower, they further impoverish the already debilitated plants to such an extent that it takes several seasons to get them back to normal health and growth. Take care of the primary leaf-buds, the flowers later will take care of themselves.

The floors of my houses being earthen, I top-dress them every winter with a coating of lime, paying special attention to the corners of the houses where usually less ventilation takes place. To allow the lime to do its work, I dispense with damping down for several weeks, to prevent it being washed into the earth, and to reduce humidity to a minimum. The liming not only sweetens the air, but also neutralises the sourness which regularly takes place on the earthen floors during winter; caused through lessened ventilation, long nights and increased sunless days.

Sourness is one of the dominant causes of failure in Orchid culture. Sourness may occur in several ways, and is the result of the presence of acetic bacteria. Bacterial action may take

(*Continued on page* 18)

Reminiscences

W. SCHMIDT, *Turramurra, N.S.W.*

● Having always taken great interest in nature and particularly in plants and flowers, I was naturally struck with the quite different and very interesting flora when I came to Australia for the first time in 1899.

Orchids soon became of special interest to me, for in those days our very pretty terrestrials were still quite plentiful in places like Hunter's Hill, round Middle Harbour, and especially on the other side of Northbridge. I used to collect quite a number of species and determine their names according to "The Flora of New South Wales."

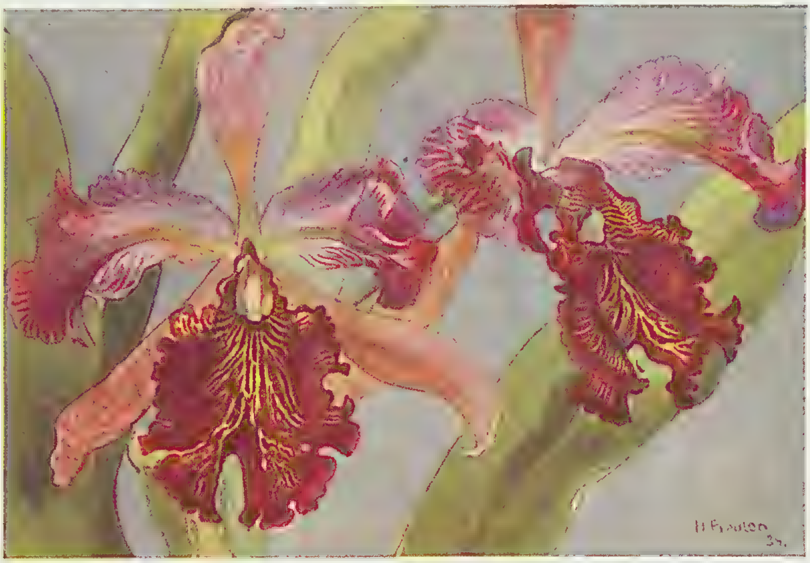
The first plants I took home to Germany came from the hills round the Hawkesbury River—*Dendrobium speciosum, D. linguaeforme, Liparis reflexa.* These few plants, together with some others I had collected on the way home, near Colombo, were accommodated in a small glass structure in the window of my room. They did not do particularly well, but they lived on; and when I brought home more plants in the following year my first "Orchid House," 3 x 5 feet, was built and put up on a table on the verandah of my office. A small lamp provided some extra heat during winter. Soon after I leased an allotment of land and built my first, though small, real Orchid House. This, in time, became too small and was not sufficient for my ambitions. The original glass house was removed to a larger property in Holzhauser, near Leipzig, and my Orchid collection, after enlarging the glass house, grew faster every year.

After I had taken up growing Orchids from seed, the young plants required more and more space, and additional glass houses had to be built. Now there are quite a number of them containing about 12,000 plants. The quality of the collection is quite good. I had the opportunity to get very fine seeds from English collections, and have also gradually acquired small plants of quite a number of good varieties of species and hybrids. Working on this material, I can say that I have had very few disappointments and some very good results, especially in the products of hybridisation and raising plants from seed.

Of course, a man with plenty of money can get together a good collection of fine Orchids in a shorter time, but I doubt whether he gets the same satisfaction out of the hobby as I, who had to start in a very modest way and who had to overcome a lot of difficulties, especially during war time.

Though there are many gorgeous Orchids in my collection which everybody can admire, my special friends are botanical species and natural hybrids. Though often small-flowered, these please me in many cases more than their big

(*Continued on page* 20)


H Fiedler 34.

A rare and beautiful variety of a well known species
CATTLEYA DOWIANA (VAR. ROSITA)
Grown by W. Schmidt
From an original painting by H. Fiedler

place on the floor of the house in accumulations of waste, the resultant reaction charging the air with a sour smell. Clear all rubbish away and dust with lime. Compost may also become sour through invasions of injurious bacteria, the roots of Orchid plants refusing to function in acidulated surroundings. The plants starve, and eventually dwindle out of existence if they are not repotted into fresh, sweet compost.

Again, bacteria may invade the tissue of plants resting in decomposing compost, causing them to become stunted in growth. In *Cypripediums* the leaves become folded and grooved, frequently rotting off, while *Cattleyas* develop black streaks in the pseudo-bulbs, which spread to the leaves, thus inducing black spots. This bacterial attack on the chlorophyll is fatal if not attended to immediately. Over-watering during winter accelerates sourness in compost.

Deformed *Cypripediums* may be treated by dipping them in lime-water, the succeeding growths usually being normal. In treating a *Cattleya,* sometimes the pseudo-bulb will continue to decay after cutting away the apparently decayed part. In making an amputation, it will be noticed that black threads or specks still remain. It is essential to cut into the perfectly healthy part, so that no discoloration whatever is descirnible. The wound should show nothing but green tissue. Coat the wound with a thick layer of lime paste made from powdered lime and water.

An instance of the efficacy of this treatment may be interesting. Some years ago I imported a number of *Cattleyas.* All the pseudo-bulbs of one plant were decayed, the only green parts remaining being three inches of a leading pseudo-bulb, which had a dormant primary eye, and two inches of the second one. The plant looked absolutely hopeless. However, I performed a surgical operation by cutting into the green tissue of both pseudo-bulbs, leaving two inches and one inch respectively, giving several applications of lime during a couple of weeks. The following season the solitary leaf-bud burst; but the pseudo-bulbous stumps did not carry enough nutriment to help development, the resultant growth being no larger than the first joint of the little finger. Each successive growth however, increased wonderfully, till this season there is every indication of the plant flowering. The vitality of Orchid plants is remarkable, inducing an enthusiast to go to any trouble to revive them. I have heard the expression of opinion more than once, that "Orchids are the easiest plants to grow, and the hardest to kill," which seems somewhat exaggerated, but one may truly say that, "while there's life there's hope."

Another source of sourness is the pot, and no matter how often an infected pot is scrubbed it still possesses latent sourness. I neutralise such a pot in a weak lime-water. First of all, dry out the unsatisfactory pot, then immerse it in lime-water until saturated. Now dry it off, the lime granules taking the place of the bacteria in the pores of the pot.

Very often saprophytic fungi, especially common moulds (*Penicillium*) make their appearance in damp, close weather, and form little clusters on the surface of the compost in which leaf-mould or cow manure has been used. Dust these clusters with dry lime which effectively prevents the spores from spreading.

Slugs are very fond of gnawing into the tender parts of *Dendrobium* pseudo bulbs. When this happens, make a paste of slaked lime and fill up the hole to prevent decay.

Some growers of *Cypripedium bellatulum* find this and allied species, such as *C. concolor* and *C. niveum*, to be rather cranky inmates of the Orchid house, and have mentioned their inability to make these charming floral nymphs happy in any degree. These *Cypripedes* appear to be "invalids" of the worst type, for the more one does for them the worse they become. Nevertheless I find them willing workers when handled in the way they like. I always pot my plants high; in other words, I mount them on a cone. This militates against water remaining about the crowns of the plants, or lodging in the axils of the leaves. If tap water is allowed to settle about the crowns of this group, damping off invariably takes place. In fact, this group is more xerophytic than otherwise in the Orchid house, requiring much less watering than other *Cypripediums.* During winter, when my plants require watering, I dip the pot up to the rim in tepid lime-water. For summer watering, I store rain water in which to dip them. In very hot weather, when it is necessary to do overhead watering, I generally cover my *bellatulum* congeners with a sheet of paper, to prevent them sharing in this treatment. I have never found sponging their leaves with clean rain water to do any harm, while immersing the plants in weak lime-water once in a way during summer keeps the pots and compost free from slime, moss, and algae, which growths are not in the best interests of the *bellatulum* group, owing to the manner in which they hold moisture. *Cypripedium Fairrieanum*, and *C. Charlesworthii* also relish an occasional dip in lime-water.

(*To be continued.*)

Information Bureau

Conducted by R. M. STEWART

● We who grow Orchids, all realise their similarity, in one regard—to the fair sex, who wear them. They are notoriously fickle, and whilst one may handle a particular species with great success, another may obtain poor results indeed. No doubt this attribute has much to do with the keenness inspired in those who follow the cult of orchids.

DENDROBIUM NOBILE

This ever-popular plant can be grown and flowered under almost any conditions; but this photo of Judge Markell's plant shows what care and correct environment can do.

Prudence forbids the extension of the simile any further, but enough has been said to bring to mind that splendid plant of your neighbour, thriving and healthy, whilst yours, of the same variety, ekes out its precarious existence on the verge of complete extinction.

It has, therefore, occurred to those responsible for the publication of this Journal to provide the means for each of us to tell all Orchid growers how we grow our "best" Orchid. We all seem to have at least one special plant which does particularly well, and our fellow growers will be grateful for details as to culture and general treatment which may enable them to succeed with the plant which previously did not thrive.

Some of us may use an unusual potting mixture. For example, the writer recently met an enthusiast who frowned upon moss and todea for *Dendrobiums*, and who declared to splendid re-

(*Continued on page* 21)

sults from the use of pieces of *Banksia* Root and nothing else.

This kind of thing is what we need, so that in course of time a new-comer to the ranks of Orchid growers can turn up the files of this "Review" and obtain details of practically every commonly-grown Orchid, and many others, suitable to his particular conditions.

No matter how common your "best" plant may be, nor how easily you grow it, remember, there are bound to be some of our readers who have had no success with the particular plant of which you write.

Tell us, too, about that plant of yours which no one else seems to have in his collection. Maybe you picked it at random from some catalogue and found it well worth having, or maybe it is one of those plants "it's no good trying—it won't grow here," of which there seem to be so many but of which there are usually a few to be found growing well.

The writer personally delights in perusing the "Miscellaneous" sections of the various English Orchid catalogues, and would dearly like to try some of the plants, such as, for example, an *Epicattleya*, but having heard of no grower in Australia being successful with them, is candidly "not game."

Let us also use this section of our "Review" as a kind of hospital. Write about the sick plants, too, and from the combined experiences of so many readers, probably a suggestion for a cure will be forthcoming.

And so we will commence this "information bureau" by details of experiments upon two newly imported *Dendrobium nobile,* as to which see Page 30, and *Dendrobium infundibulum.*

Dendrobium Infundibulum

G. H. SLADE, ***Manly.***

● One of the easiest Orchids to grow in a cool, sunny bush house in Sydney is *Dendrobium infundibulum.*

Most *Dendrobiums* require somewhat warmer conditions than those existing in the open in Sydney, but in *D. infundibulum* we have a plant with flowers among the largest in the family and which last at least six weeks in perfect condition.

It belongs to a section of the *Dendrobes* which is not represented in Australia, but which is distinguished by the fact that the leaves and pseudobulbs are covered with black hairs, hence the name given to that section—*Nigrohirsuteae.*

The flowers require no description, as Mr. Hamilton's photo shows them to advantage on a well grown plant. However, it is not difficult to grow such a specimen if the plant is grown well for a few years and kept out of the glasshouse. Next to a glass window on the sunny side of a bush house suits it perfectly.

There appear to be at least two varieties of *D. infundibulum* (apart from its near relation, *D. Jamesianum*), one from Assam with long thin stems, and the other from Burma, with somewhat shorter but much thicker ones. The writer has had much more success with the Burmese variety and considers it among the easiest and best of orchids to grow, which are perfectly at home in the bush house.

Great care must be taken when watering young growths, as they are very liable to damp off if they become filled with water.

It will do best in a teak basket (as do most epiphytical orchids), although on a horizontal she-oak log, with a little moss, it will do excellently if it is regularly watered.

It blooms from September to February, and is a very free flowerer and quick grower—with *D. nobile,* a perfect beginner's Orchid.

REMINISCENCES—*Continued*

showy cousins. Here in Australia we have quite a number of so-called botanical Orchids which are worth taking care of, and even a man with quite a small means can have a very interesting little collection and get a lot of pleasure in cultivating and growing them well. Most of these little gems like *Sarcochilus falcatus, S. Hartmannii* and *S. Fitzgeraldii,* or *Dendrobium speciosum, D. delicatum, D. falcorostrum, D. gracillimum,* and *D. Kingianum,* are easy to grow when you use a little care and try to understand their particular requirements.

Observation of Orchids in their natural habitat, finding out where they grow and what material they grow on or in, will help tremendously. I do no know of any secrets in their successful cultivation, but we all have much to learn yet, and I am sure we shall be able to add more and more Orchids to our collections, especially the beautiful terrestrials for which, as yet, we have not found the correct treatment; meaning that we have not learned to understand their requirements.

But don't these difficulties make our hobby all the more interesting?

Our Terrestrial Orchids

A. G. HAMILTON, F.R.H.S., *Chatswood, Sydney, N.S.W.*

● Most Orchid growers devote their attention to the Epiphytal Orchids, neglecting the Terrestrial species. These are equally attractive but do not produce such masses of blossom as some of the epiphytes; but are still very interesting and are worthy of cultivation and provide many problems in their pollination, very little being known as to the methods.

Probably the neglect of these plants is due to the fact that they are difficult to transplant. Unless they are taken up with the utmost care, the roots are damaged, and consequently some of the mycorrhizal fungus are lost, and Orchids depend (very largely, if not entirely) on these symbiotic organisms for healthy growth. The most successful method is to take a jam tin of suitable size and melt off the lid and bottom of the tin, thus leaving a hollow cylinder. Drive this down round the plant till the mouth is level with the surface of the soil; then insert a spade under the cylinder and you can lift the plant with its roots undisturbed. If the whole thing is planted, the metal will gradually rust away and leave the plant *in situ;* the soil should, of course, be of the same nature as that in which the plant originally grew.

Among the terrestrials of New South Wales there are many striking and beautiful species, but the most remarkable are found in Western Australia, which has many fine plants of the order. The largest New South Wales terrestrial species are *Phaius* and *Calanthe*. *Phaius* appears to be rather difficult of cultivation, at any rate, in the vicinity of Sydney, but *Calanthe* is quite easy. *Phaius* may be considered a semi-tropical plant and grows in swampy country. *Calanthe* once extended as far south as Bulli, but has been extinct there for many years. It is remarkable for its large fluted leaves and the flower stalks reach to nearly two feet. It bears a spike of pure white blossoms, but before opening the buds have a bright green tip.

Dipodium and *Gastrodia* are fairly common all along the coast. They are both leafless. The former is found in open forests, while *Gastrodia* is usually found in brush forests—rain forests. *Dipodium* is sometimes called "Native Hyacinth" and "Plum Pudding Flower," the flower being pink of varying shades with darker spots. It flowers in summer, and being leafless must make great use of its mycorrhizae. The method of pollination of these two plants is still unknown. *Dipodium* is said (in one species, at least, in New Guinea) to be an epiphyte growing on the trunks of trees. Many leafless plants are root parasites, and both these species may possibly have that characteristic. *Gastrodia,* as mentioned, is a denizen of the brushes along the coast. It has a large tuber more or less scaly, and is sometimes called "Native Potato." The tuber is white and the flowers are white suffused with rusty-brown. New Zealand has four species of this plant, and many occur in North America and are variously known as "Indian's Pipe" and "Ghost Flower." Certainly all these plants growing in the gloom of a dark forest have a ghostly appearance.

● Another of the leafless group of Orchids is *Galeola cassythoides,* which grows in our State along the coast, usually in sandstone soil. It is a climber, growing up to ten or twelve feet in height. The stem and bracts are brown, and it bears short branches which act as suckers to cling to trunks of trees; but these do not in any way take nourishment from the tree, although it may be noticed that the bark of the tree thickens up along the sides of the suckers. It is reputed to be a root parasite, and is certainly very difficult to grow. Mr. Tucker, a resident of Paterson, N.S.W., succeeded in growing one after planting a great many roots. The N.S.W. variety is exceeded in size by the Queensland species, *G. Frazeri* (previously known as *Ledgeriana*). Mrs. Curtis, of Tamborine Mountain, observed one growing through the branches of trees and over fifty feet in length, which may be considered, I think, a record size for an Orchid. Another leafless Orchid is probably the most extraordinary of the tribe *Crytalthemis Slateri,* which grows entirely underground. It was discovered by Mr. Slater, at Bulladelah, but another underground Orchid was previously discovered bv a farmer while ploughing in Western Australia, *Rhizanthella Gardneri.* Although these two plants belong to different genera, they bear a close resemblance to each other. Each of them produces a cup of a fleshy consistence, the minute flowers occupying the centre. The flowers come to the level of the ground; and so are very difficult to detect among the grass and scattered dead leaves. The whole of the plants except the flowers are white and must be saprophytes deriving their nourishment from organic matter in the ground and that supplied by mycorrhizae. I believe that in the Malay Archipelago other species occur having the same habit;

and since the two under our notice occur in such widely separated localities, they will probably found in other States.

● The small genus of *Corysanthes* contains a few very beautiful flowers of a hooded shape, the colour being crimson with white markings, which are semi-transparent and of a frosted appearance. They grow in humus soils in shaded places and should make good pot plants. They should not be confused with *Coryanthes;* a genus of American Orchids.

● The genus *Cryptostylis* contains three species, *longifolia, erecta,* and *hepticbila,* usually found in sandstone country. They are very easily grown and flower readily under cultivation.

● *Prasophyllum* is a large genus having small flowers, many of them quite minute. They have the peculiarity, by a twist of the stalk, of bearing their flowers upside down; and this probably has some relation to the method of pollination.

● *Spiranthes Australiis* belongs to a genus found in the Northern Hemisphere. Although small, it is a very attractive plant; the flowers are crimson and white and arranged in a spiral on the stem. It appears to be tolerant of various habitats. It often grows in swampy places, but does equally well in fairly dry conditions, and on one occasion I found it growing among loose sandstone packing between the sleepers in the railway line near Bulli.

(*To be continued.*)

Cattleyas and Allied Genera

F. W. CHILVERS, *Hon. Sec. Victorian Orchid Club.*

● To one thoroughly interested in Orchids, no collection is complete unless it contains representatives of a few of these allied genera, though the beginner is often deterred at the outset by the impression that those plants are expensive and hard to grow.

Prices however, have a very wide range; and plants can be obtained at a cost to suit every pocket. When one hears through newspapers, etc., of huge prices being paid, they are usually exaggerated, though high prices are still sometimes paid for new hybrids of special merit.

The general public usually associates Orchids, and particularly the *Cattleya* family, with a hot, steamy atmosphere and a large fuel bill; but under Australian conditions and with suitable accommodation, even *Cattleyas* can be grown for eight months of the year without artificial heat, and, in my opinion, they can even be grown at the warmer end of a cool house and without any heat at all, if suitable varieties are selected; although they would probably be hard to flower, under Victorian conditions at any rate.

No hard and fast rule can be laid down for the successful cultivation of the *Cattleya* group; but, given enthusiasm and providing the grower endeavours to study the likes and dislikes of his plants, there should be nothing to stop him from growing them successfully.

Cattleyas in their multitudinous hybrid forms can be grown with many other greenhouse plants providing careful watch is kept for insect pests. This section, which has such a wide and varied range, cannot fail to appeal to the enthusiast, and the members of this section are considered by many to be the aristocrats of the Orchid family. In range of colouring there is no other Orchid to equal them; and one has only to compare the original species with some of the new hybrids to see the wonderful improvement made in recent years.

Of the genera allied to *Cattleya* and which will cross freely with one another, there are the *Cattleya, Laelia, Brassavola, Sophronitis, Epidendrum* and *Schomburgkia,* and from various combinations of these we have our latest hybrids.

In the *Cattleya* section, mention may be made of a few fine species easily grown and noted for their fine colouring.

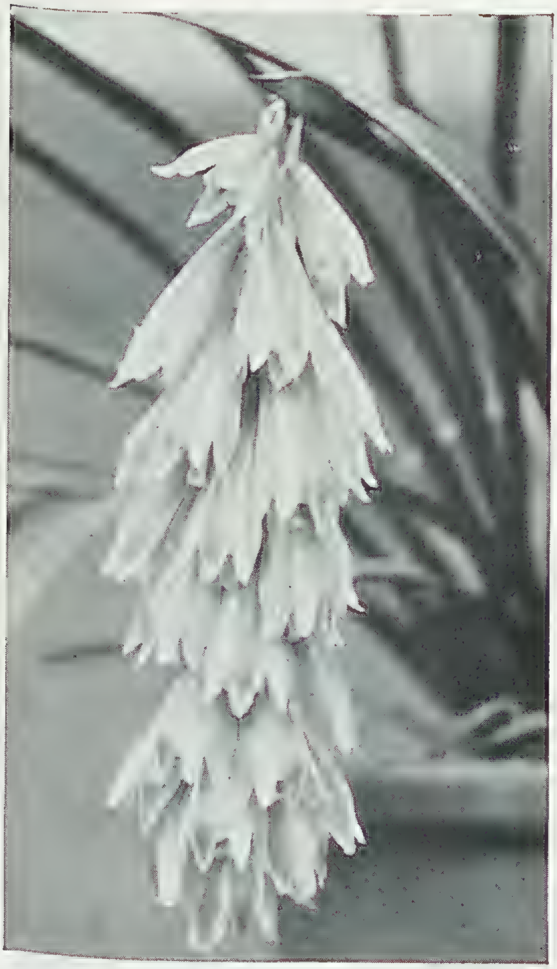
Cattleya Mossiae is noted for its beautiful lip, and *Cattleya Mendelii,* too, is well worthy of mention. Both are spring flowering. *Cattleya gigas,* a species with large flowers richly coloured, is a summer flowering variety. *Cattleya labiata,* a very free flowerer and strong grower, blooms in Autumn. *Cattleya Trianae* is a very distinct form and flowers in winter.

These species are well known favourites and good growers, and being very free flowering are quite suitable for beginners. They are all natives of South America.

Of the *Laelia* section; the best known is *Laelia anceps.* This is distinct in habit, having short, stout pseudo-bulbs and throwing a long spike in Autumn or Winter. They require a little more light than *Cattleyas* and are generally grown suspended near the roof glass. They will be found very suitable for any beginner, as they are easily grown.

Hybrids between *Laelia* and *Cattleya* (*Laelio-*

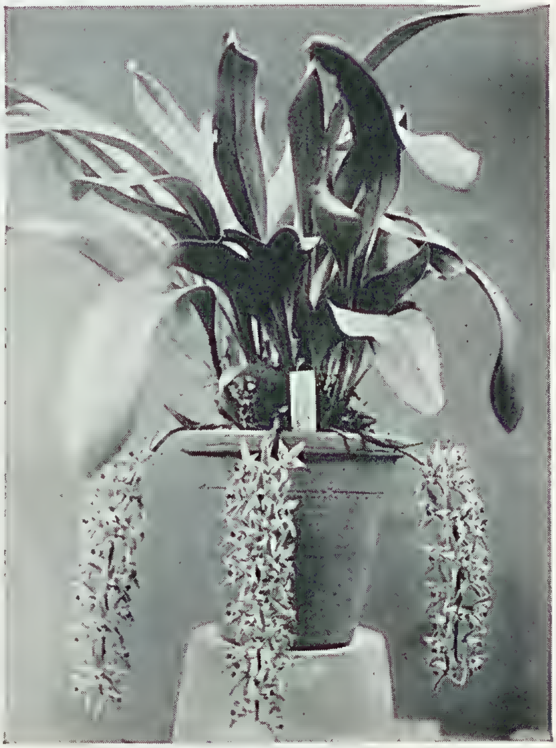
(*Continued on page* 24)



CYMBIDIUM ELEGANS

TWO UNCOMMON CYMBIDIUMS

Mr. E. A. Hamilton's plants of Cymbidiums, with drooping flower spikes, are beautiful specimens of their type. They are not so showy as the more colourful, larger flowered hybrids; but are exceptionally interesting and graceful. Both are very easily grown in a bush house or under a tree.



CYMBIDIUM DEVONIANUM

ACKNOWLEDGMENTS

The Editor acknowledges with thanks the articles and photographs, all of which have been contributed, entirely gratis, for this number; and desires to mention particularly our cover illustration, which is reproduced from an original water colour by H. Fiedler, and kindly loaned by Mr. W. Schmidt. Grateful thanks are also due to our advertisers, who have assisted materially in making this publication possible.

cattleya) are among the finest and are very popular with all enthusiasts. Some of the best varieties known are in this group, being good growers and free flowerers, and having a wonderful range of form and colouring.

Brassavola is a very distinct genus and very hard to grow, but one (*B. Digbyana*) possesses a wonderfully fringed lip. This genus has been crossed with the *Cattleya*, and the resultant hybrid, *Brassocattleya*, is easily distinguishable by its beautiful fringed lip, which makes the blooms very attractive, having inherited the beautiful lip of the *Brassavola* and the form and colouring of the *Cattleya*.

The hybrids between *Brassavola, Laelia* and *Cattleya* (*Brassolaeliocattleya*) are among the finest known Orchids, noted for their wonderful size, shape and colouring; and are becoming more popular every year. Many of these flowers measure up to 9 inches from petal to petal. Having some of the *Laelia* constitution, they are generally acknowledged to be freer growers than the *Brassavola-Cattleya* hybrids and consequently more popular, though I understand this is not the case in Sydney, where *Brassocattleyas* are much more easily grown than in Melbourne.

Sophronitis, a genus of charming little plants, is a favourite with all Orchid growers. The species *S. grandiflora*, is a a fine scarlet, and *S. Lowii*, a hybrid, is a beautiful orange-yellow. These can be grown under quite cool conditions but should be suspended near the roof glass and shaded from direct sunlight. However, they are very difficult to grow and cannot be recommended for the beginner.

The *Sophronitis* is the progenitor of the beautiful *Sophrocattleya* (*Sophronitis x Cattleya*) and the *Sophrolaeliocattleya* (*Sophronitis x Laelia x Cattleya*) hybrids. The flowers are smaller that *Cattleyas*, but of wonderful colouring, being inherited from the brilliant *Sophronitis*, and from palest to deepest shades. These again are rather difficult to grow. They will not stand a sudden change of temperature, over-watering, or over-potting, and need plenty of light to be grown successfully.

Then we have a multigeneric hybrid composed of *Brassavola, Sophronitis, Laelia* and *Cattleya*, and called *Potinara*. These are beautiful hybrids, having glorious colouring, but are hard to grow. They require the same treatment as the other *Sophronitis* hybrids.

Culture

In the growth of the various members of this section, light, heat, and atmospheric conditions play the most important part and cannot be too carefully studied to ensure successful cultivation.

Heat or temperature is an important factor. To keep an even temperature is the aim of every grower. It is a difficult problem where the grower has other interests and the house is small, but to be successful one must guard against fluctuations of temperature as far as possible. Ample ventilation and sufficient moisture around the stakes to counteract the heat helps a great deal in this important phase of their cultivation. All Orchids require fresh air (but not draughts) at all times. Air is essential to healthy growth and the quality and substance of the flowers. Nothing injures a plant more than a stuffy atmosphere and an Orchid above all is very sensitive to atmospheric conditions.

Temperature should range about Min. 55 degrees at night in Winter, but the plants will stand lower if other conditions are right and the plants are kept dry.

At night, temperature in Summer of from 60 degrees to 65 degrees should be arrived at and the house should be damped down two or three times a day and the plants frequently sprayed overhead during hot weather.

As Winter approaches the water supply should be gradually lessened and the house kept drier as the temperature becomes lower.

Light

The next important factor is light. Possibly more growers fail in this respect than any other, and it is difficult indeed to determine the exact amount. As a newcomer to Australia, the intense light was the most difficult problem with which I had to contend.

Light is an essential factor to healthy plant growth, giving firmness to the tissues and having a direct bearing upon flower production.

The colour of the foliage usually gives a good indication as to light requirements, although foliage can lose colour from faulty root action or over-watering.

Shading

Roller, lathe or light canvas blinds are the best method of shading, as they can be rolled or unrolled according to the prevailing weather conditions.

Painting the glass is very effective here; although with the intense light and heat in summer the temperature rises too high on hot days and conditions frequently become too dry.

Blinds about 1 foot above the glass and the glass thinly coated with white-wash is perhaps the ideal method of shading.

Potting

This operation seems to be the biggest puzzle to the beginner; and it is almost impossible to convey the exact correct procedure. A practical lesson would be of far more benefit than all the lectures and articles combined. The biggest mistake is over potting; and this with overwatering, does more to kill a plant than anything else. Osmunda fibre should be used for best results. The Australian Todea fibre can be mixed with it, but when used alone does not give that vigorous growth which Osmunda does. Fibre should be thoroughly cleaned, washed and cut up; and a little fine spaghnum moss added if the plants are in a poor condition.

Plants at a suitable stage for potting are those with new growth about 2 inches to 3 inches in length and any that are commencing to root from this new growth. Crock the pots to about one-third of their depth. A little charcoal added helps to keep the compost sweet, and is especially advisable for beginners as an antidote to over-watering. Remove all surplus back bulbs and retain about three leaved bulbs and growth. Cut off all decayed roots and any other dead matter from the plant. Care should be taken not to injure new roots, and if a sharp potting stick is used and all compost worked from the edge there should be no injury at all. Pot firmly and keep the rhizome level with the rim of the pot. It is a good idea to work a few heads of spaghnum moss near the surface. (This is an excellent guide to watering. It will always be green when the plant is wet, and light and dry as the plant dries out.) Plants should be well shaded after potting and frequently sprayed overhead to prevent shrivelling. Great care should be taken against over-watering until root action commences. No rule can be laid down as to correct watering. Pseudo-bulbs will shrivel if too dry and also through faulty root action, and it is only by close observation that one is able to tell the correct quantity of watering necessary. More water should be applied as the growth matures until buds appear in the sheath. Many well-known growers withhold water a little as the bulbs "make up," and then increase the supply when the buds show in the sheath. During flowering remove to a drier place if possible and water carefully and gradually lessen when flowers are cut off.

Resting

This commences the resting period so puzzling to beginners. Plants should be watered very carefully and just enough to prevent shrivelling. The majority of Orchids rest through the Winter, and as temperatures are lower and evaporation less rapid, it is at this time that they require less atmospheric moisture and water at the roots, and more light and air to thoroughly ripen plants. This helps a great deal to carry them through the dull and cold periods of winter.

Diseases

The diseases and insect pests which affect the majority of Orchids are often a result of wrong cultivation and unhealthy atmospheric conditions which lower vitality and make them an easy prey to thrip and scale. Frequent sprayings with a reliable insecticide are necessary all through the year. Nicotine Sulphate or Black Leaf 40 are suitable for all. Plants should be sponged at least once a year with soft soap, to remove all scale and dirt. This amply repays the trouble and time taken, as the cleanliness of the plant and its surroundings is an aid to successful culture.

Propagation

Cattleyas may be propagated easily by back bulbs (the bulbs removed when potting) and should the "eyes" be good, they will easily break into growth if potted in spaghnum moss and a little fibre.

Letter from Dr. Rodgers—*Continued*

habitable part of the earth's surface. Thus a grower may follow his interest even in the city; a traveller may study the problems of geographical dissemination, and so help to elucidate former connections of continents and other land masses, the microscopist may contribute to our knowledge of physiology and unravel the mysteries of mycorrhiza, and a discriminating collector provide material for the systematist.

The chief purposes of this Journal are, I take it, to co-ordinate all such effort and direct it into desirable channels, to tap available sources of information and distribute it to necessitous quarters, to act as a receiving centre where difficulties may be discussed, and, if possible be overcome. Other functions will manifest themselves as experience ripens, and the collective wants of its subscribers become more obvious.

R. S. RODGERS,
(M.D., Ch. M., M.A., D.Sc.).

Thus a Collection Was Born

WILLIAM B. WORTH, *Willoughby, N.S.W.*

● A sick bed would scarcely be considered a likely place in which to start an Orchid collection, yet it was there a few years back in most unusual circumstances that mine was born. But let me tell the story.

Lying dangerously ill for several weeks, a ring came to the door one morning, and a voice in respectful tones enquired if any Orchids were required. Now all at our home are sincere flower lovers, but my wife's reply was: "Oh, I don't think so, thank you; I have my husband home very ill in bed." After a little further conversation the salesman suggested coming into the sick room and showing his samples. This he eventually did.

He stayed some time and spoke intelligently and interestingly, providing some welcome diversion and arousing me from a lifeless and disinterested attitude . . . A good conversationalist, he explained the various Indian *Cymbidiums* and *Cypripediums* that he had with him, all neatly labelled . . . What hard times he had been experiencing too, being out of employment for a considerable time. . . Luckily his father had been a seafaring man, and for many years had planted various Orchids at his home at Thornton, New South Wales, where they had grown into quite large plants. This was fortunate, for now he was able to sell small divisions of these expensive plants at a very moderate price—a very laudable effort at self help. People realising their worth had bought very well indeed. . . He called several times.

The stimulus of a new interest in life often helps one along the road to recovery, and these fine Orchid plants probably did so in this case. The turning point came at last, and it was not long before I was seeking knowledge, and what a revelation was in store for me. Visiting a genuine Orchid enthusiast and seeing in his collection what looked like one of my newly acquired treasures, I enquired the name. "Oh, that's *suave;*" and another, "That's *albuci florum*"; and again a third, "That's a *Liparis*—all natives, and not of much account."

Now, my plants bore different labels from these, the larger plants being *giganteum,* and if my memory serves me right, others of the same species, but different sizes, being *grandiflorum, insigne Sanderi,* etc., etc.

It didn't take me long to realise that I was one of the class of which "there is one born every day."

Disgusted? NO! It has merely excited further interest and thirst for more knowledge and better plants; so perhaps the enterprising salesman did more than he knew.

A Remarkable Epidendrum

G. HERMON SLADE, *Manly*

● It is rarely indeed one finds a perfect Orchid specimen—especially an exotic species—growing outside. Yet a splendid example may be seen at the home of H. H. Richards, 13 East Esplanade, Manly.

This *Epidendrum* is a revelation, after the usual specimens seen in glass-houses, with massive growths and huge leathery leaves; and is never out of flower, although it is at its best in September.

The specimen is covered with terminal growths, themselves flowering, and has numerous seed pods doubtlessly insect-pollinated.

The plant was received from Brisbane three years ago, and was quite a minute specimen.

It is well worth a visit, and can be seen quite easily from the road, as an ordinary garden plant, growing in sandy soil and in the full sunlight. Surely this offers some most interesting experiments to be made with other exotic Orchids which do but poorly in the glass-house.

The Orchid is a hybrid—most likely *E. O'Brienianum* = (*evectum x radicans*) and has ruby-red flowers with a touch of yellow on the lip, in terminal clusters—a very pretty Orchid.

Cool House Orchid Culture

T. H. JAMES, *Longueville, Sydney, N.S.W.*

AN ANGULOA

They flourish easily in a bush house. This plant was almost dead when it arrived from South America, and the advance can be seen clearly in the photo from when it was imported five seasons ago. Grown by Mr. T. H. James.

● There seems to be an impression among the majority of Orchid growers, in Sydney at any rate, that, with the exception of our native Orchids and possibly *Cymbidiums*, a glass house artificially heated during the winter and any prolonged cold period, is essential for successful cultivation.

My own experience for the past ten years, and, long before that, the experience of my father, convinces me that such is unnecessary for by far the majority of the Orchids usually grown. Of course, to growers living in elevated districts, these remarks require some qualification.

My father's house, which was at Summer Hill, was entirely glass, with a ventilator about 10 inches wide around the whole of the bottom, and a similar ventilator along each side of the whole of the ridge. During the warmer weather these ventilators, and also the door, were open all day and frequently part of the night. During the winter they were opened later and closed earlier. On cold or wet days portion only could be opened. There was no artificial heat of any kind.

In addition to Orchids, that house accommodated ferns, palms, and many other types of plants. The Orchids included many varieties of *Cypripediums*, among which were *C. Parishii*, *C. longifolium*, and *C. Dominianum*; most of the *Dendrobiums*, *Phaius grandifolius*, *Thunias*, and also *Cattleyas;* among the last named being *C. liabiata*, *C. Mossiae*, *C. Gaskilliana*, *C. Skinneri*, *C. Dowiana aurea*, and also *Laelia purpurata alba* and *Laelia anceps*. All these grew luxuriantly and flowered profusely. Hybrids had not then come to prominence.

As to my own house—half of it is roofed with

CYPREPEDIUM CAPPAMAGNA

One of the largest of the Cyprepedes, and of good parentage. Fairrieanum Boxallii, Spice Rianum, Villosism (the latter two twice) are the species in its composition, and a trained eye will pick up individual characteristics of the various parents.

glass and the other half with ti-tree. A fence and a wall form portion of the sides, the remainder being glass and ti-tree. It is fairly well sheltered from the west and the south. The north-east winds of summer go right through it.

I have grown and flowered in that house most of the *Dendrobiums*, including *nobile, densiflorum, chrysanthum, Dalhousieanum, Bensoniae* and others; *Cypripediums; Vanda ceorulea* and *Vanda tricolor* (one plant of the latter gave two spikes of ten blooms each this season); *Aerides; Anguloa; Saccolabium Blumei; Thunia,* and, of course, *Cymbidiums.*

During the past two years I have obtained a number of members of the *Cattleya* family, *Cypripediums* (including *Javanicum, glaucophyllum, Charlesworthii, Curtisii, callosum, ciliolare,* etc.), *Vanda Sanderiana, suavis,* and others. All these have not only not receded in growth, but, in most cases, there is a definite improvement and some show particularly good growth.

At the present time I have either in flower or in bud one of the *Anguloa* family, *Cypripedium Charlesworthii* (both for the third year in succession), *Cyp. callosum, Cyp. Javanicum and Cyp. Tonsum.*

I have lately built a small frame of brick and glass, in which, since the end of July last, I have placed a number of plants. That frame is always a few degrees warmer than the house, and would give newly imported plants a better chance of getting acclimatised than the open house. Next winter most of those will remain in the open house.

My idea is that Orchids relish plenty of air, particularly the moisture laden North-east Winds and if reasonably protected from the cold winds of winter a very large percentage of Orchids can be grown without artificial heat, while, if the house can be quite closed at night during winter months, or on cold, wet days, there are very few Orchids which cannot be successfully grown in and around Sydney without heat.

During the last winter the temperature in my house was, on several occasions, down as low as 34 degrees, and in the frame down to 40 degrees, and the plants did not appear to be any the worse for it. In fact, one *Cattleya* which had started to grow about last June, continued growing all through the winter, and the growth is equal to that from which it sprang.

My object in writing these notes is not to decry the use of artificial heat, but to dispel an idea that it is essential, and thus, possibly, to induce many, who may not be prepared to go to the expense involved in installing heat, to become followers of this fascinating cult.

The General Secretary of the Orchid Circle of Ceylon's Letter

● I deem it a great honour to be invited to write a foreword to the inaugural number of the "Australian Orchid Review," but it is with diffidence that I accede to this request, realising that our colleagues of the Orchid cult in Australia are far ahead of us in Ceylon, both in knowledge and experience.

It has been a pleasure to follow the progress of the Orchid Society of New South Wales which celebrated its first birthday recently, and now it is a privilege to associate myself with the inception of the Society's official journal. To be able to report so successful a first year, with so many interesting and instructive meetings, and a membership roll exceeding a hundred, is indeed a tribute to the keenness and enthusiasm of Orchid lovers in New South Wales.

While sending you felicitations from Ceylon on the commendable success that has crowned your efforts in the past, I send you our cordial good wishes for a long and successful career for this new enterprise of yours, the "Australian Orchid Review," which I am sure will receive a warm welcome from all quarters of the Orchid world.

I was particularly interested to observe that, in his Presidential Address to the first annual meeting of the Orchid Society of New South Wales, His Honor Judge Markell urged that more attention be paid to the native Orchids of Australia. All the world knows and loves the magnificent "horticultural Orchids" of your country—your *Dendrobes,* your *Cymbidiums,* your *Phaleanopsis Rosenstromii.* But what of the charming little "botanical Orchids" that grace your forest and woodland—your "Sun "Orchids," your "Spider Orchids," your "Greenhoods," and other choice gems of the Australian

STANHOPEA TIGRINA
A remarkable American orchid which produces its large orange and purple flowers through the base of the basket. It is easily grown, and Mrs. E. M. Mitchell's plant shown here is a model of good cultivation which would be hard to improve. The flowers are powerfully perfumed with a melon-vanilla odour.

CYPRIPEDIUM CALLOSUM
A lady's slipper with beautifully mottled foliage and large, handsome flowers; principally rich purple and white. The plant is a native of Siam and Cochin China.
"Callosum" is a Latin word, meaning "thick or hard skinned."

bush? The very fact that most of the Orchids of your country have popular names indicates, as I have had occasion to remark on many occasions, the appeal of these beautiful plants to the popular imagination of the Australians. But there are many outside your shores who have never even heard of most of these Orchids, many who would delight to know of their habits and peculiarities. I have no doubt that the "Australian Orchid Review" will be the means of your telling the world about the Orchid wonders that Nature has bestowed upon your country.

In a recent letter, the Rev. Mr. Rupp, one of your Vice-Presidents, tells me of the vandalism that menaces some of the finest native Orchids of Australia. It is less with surprise than with a sympathetic fellow feeling that I learned these facts, for we are beset with the same troubles here in Ceylon. In an effort to check the spreading danger of vandalism that threatens many of our best Orchids, the Orchid Circle of Ceylon has recently sought and obtained the co-operation of the Government to safeguard our forest treasures by legislation.

Legislation, however, is not by itself sufficient to preserve the flora of a country. The creation of a favourable public opinion is of equal, if not even greater importance. Let us teach our people, you in Australia and we in Ceylon, to respect the treasures that Nature has given into our hands for safe keeping. When the public comes to look upon these gifts of Nature as a national heritage, they will spontaneously take pride in actively participating in safeguarding them, and laws and legislation may be rendered superfluous. I have no doubt that the "Australian Orchid Review" will render to the Orchids of your wonderful country a splendid service, by spreading among the people a true love of their own Orchids that would engender for them the respect and care they so fully deserve.

Towards the realisation of these and other worthy objects that your Journal stands for, I send you the best wishes of the Orchid Circle of Ceylon.

E. SOYSA,
M.B., B.S. (Lond.), M.R.C.P. (Edin.),
M.R.C.S. (Eng.), L.R.C.P. (Lond.).

Treatment of Newly-Imported Dendrobium Nobile

R. M. STEWART, *Neutral Bay, Sydney, N.S.W.*

● Last April—very late in the season—two *Dendrobium nobile* were imported from India. The plants were large ones, though one was considerably larger than the other. Both were hung in a dark shed, roots up, for about a fortnight, and during this time no water was given. New growths were visible on each plant upon arrival and these became more prominent during the hanging period. Both plants were next placed in a shady spot for a further fortnight, still roots uppermost, and the leaves and bulbs were frequently dipped in water. This caused a plumping of the bulbs and more rapid growth of the new shoots.

The larger plant was then potted in one of those large, earthenware seed pans, placed in the bush-house and regular watering was commenced and this was continued throughout the winter. The new growths grew rapidly and the immediately prior growths, which were almost complete upon arrival, took on a new burst of vigour and commenced growth again. They have just matured and many of them are over four feet long. The new, last year's growths are now rooting strongly, and they too, show signs of attaining a great length; very different from the usual spindly efforts for the first year of most of the newly imported *Dendrobiums.* Further growths are now appearing from the bases of the unmatured growths.

After potting, the nodes of the older growths produced about eight aerial leads and several "flowers"—these looking like a grower's nightmare—half flower and half growth.

The other plant was kept much dryer and was potted some time after the other. Kept dry, it flowered in June. Its growth is very poor compared with the plant which was kept moist.

I consider that the plant which flowered was treated in the orthodox manner, but I intend, in future, to maintain growth of late-imported *Dendrobiums* throughout the winter, for there is now no comparison between these two plants, and the loss of the first flower-crop appears certain to be compensated by the prospective yield from the huge bulbs which will be ready for next spring.

DENDROBIUM INFUNDIBULUM

A beautiful large flowered Dendrobe, white with an orange eye. A very showy Orchid. Plant grown by E. A. Hamilton, Chatswood, N.S.W. Every beginner should possess this species. Cultural notes for this plant are given on page 20

H. E. SMART

for

CYMBIDIUM SPECIES AND
MODERN HYBRIDS

Our range of healthy and vigorous specimens of these beautiful out-door subjects is unsurpassed. Connoisseurs are invited to view our collection. Prices are competitive. We emphasize that our Stocks are mature and growing well. Fresh shipments arriving at frequent intervals from notable overseas hybridists. We also stock an assortment of Dendrobium and Cypripedium. Compare our quality, size, and prices at nursery.

Sobraon Road - Eastwood - N.S.W.
and Show Grounds, Pacific Highway, Gordon.
Phone: Epping 1439, and JX3052

TAYLORS

ORCHIDS :: ORCHIDS

Our Nursery is always open for inspection, and our experience is at the service of any Amateurs.

We have large collections of all species, varieties, and hybrids raised from the finest parents, and shall be glad to forward our illustrated Catalogue on request. Also quotes for special selections.

Advice freely given with regard to construction of houses. Send for our quotes for repotting, or our charges for inspecting and working on collections, by the day, month, or quarterly.

TAYLORS
Orchid Growers, Importers and Exporters
5 ACACIA ST., BELMORE, N.S.W.
UL1045

Splendid stock of

CATTLEYA, CYMBIDIUM,
CYPRIPEDIUM, ODONTOGLOSSUM
and PHALAENOPSIS hybrids.

Over 3 acres of newly-built houses devoted to Orchids

FLANDRIA
BRUGES (Belgium)

The Ideal Nitrogenous Fertilizer

Address enquiries to—
R. Dundas Smith & Son
44 MARGARET STREET, SYDNEY

Mention the "Australian Orchid Review"—it identifies you.

ORCHIDS OF SIAM

Cypr. callosum, Phal. Esmerala, Renant. coccinea, Rhync. coelestis, V. Denisoniana, and all kinds of SIAMESE ORCHIDS at MODERATE PRICES.

Catalogues free—Exchanges considered.

The Bangkrabue Nursery

24kh. Phaya Klahom's Lane
BANGKRABUE, BANGKOK, SIAM

INDIAN ORCHIDS

Fine collections of showy Orchids for £1, £2/10/-, and £5. Packing and Postage free to any address.

G. GHOSE & CO.

Exporters of Orchids, Liliums and Himalayan Flower Seeds.
TOWNEND, DARJEELING, INDIA

ORCHIDS & CALADIUMS

CYPRIPEDIUMS, 6 sorts for 24/-; 6 sorts CYMBIDIUMS, 23/-; 12 sorts Grand DENDROBES, 38/-; 12 sorts showy Orchids, 28/-. 24 sorts named CALADIUMS, 24/-. Post free. Catalogues of Orchids, Bulbs, Seeds, and Wholesale Quotation for Orchids, free. A copy of "ORCHID GROWING IN N.S.W." sent free with orchid orders.

The CHANDRA NURSERY

P.O. Rhenock, Sikkim 16 (Bengal)
INDIA

WATER LILIES

Six distinct colours—flesh, rose, white, yellow, red, salmon, for 27/6, or 5/- each posted.

J. OVERALL

Darwin Nurseries
Sulphur Creek . . . TASMANIA

ORCHIDS

Cymbidiums, Cattleyas, Dendrobiums, etc., you get good plants at good prices from

Armstrong & Brown

Tunbridge Wells, England

We have enclosed lists which we hope will interest you. All orders received shall have our very best attention in packing and selection of the plants.

Terms of Business: Packing charged at cost. Carriage to docks from nursery forward. 50% cash to accompany all orders.

SIAMESE ORCHIDS

Gerides, Cypripediums, Dendrobiums, Phalaenopsis, Vandas, etc., etc., etc., at reasonable prices; also willing to exchange.

PHRA MAHA VICHAI

591, KADICHIN, BANGKOK, SIAM

CHAPMAN SON & DAVIDSON

Drummoyne Rd., Drummoyne, N.S.W.

Teak Baskets

Copper wired throughout

PRICE:	5in.	12/- doz.
	6in.	13/- ,,
	7in.	14/- ,,
	8in.	16/- ,,
	9in.	18/- ,,
	10in.	22/- ,,

SANDERS

St. ALBANS

ORCHID GROWERS, HERTS., ENGLAND

OVER 50 YEARS' EXPERIENCE
AT YOUR SERVICE

TO SUIT ALL HOUSES **ORCHIDS** TO SUIT ALL CLIMES

Write for special offers, latest Price Lists, and "Cultivation of Orchids"

An illustrated and interesting Book free on application to Members of the Orchid Circle of New South Wales

◆

SANDERS ORCHID GUIDE

A complete work on all best known species

1927 EDITION—POST FREE—21/-

ORCHIDS

Orchids of merit in great variety
Ranging from seedlings to specimens
Choice Exhibition or Commercial varieties
Hybrids from parents of distinction
Interesting Botanical Specimens
Delivered all over the world, by:

Stuart Low Co.

Nurseries: Jarvisbrook, Sussex.

Head Office: Bush Hill Park, Enfield,
Middlesex, England

Catalogues on application. Inspection of our houses invited. Offer of collections.—small or large—prepared on request.

Australian Grown Bulbs

Secure your requirements NOW

BLACK RANUNCULUS: 12 roots in 3 distinct varieties, 2/6; 24 roots, 4/9; 12 roots of each sort, 7/-. ANGEL'S TEARS DAFFODILS: White, 9d. ea. LILIUM ROSEUM: True rose coloured variety, 1/3 each. Full DOUBLE CHRYSANTHEMUM-FLOWERED ANEMONES, Mixed colours, 2/6 dozen. CHERRY PINK LADY TULIPS, rare, 9d. each. The Black MOURNING IRIS (Susiana), strong roots. Lavender FEATHER HYACINTHS, 3/- dozen. BUTTERFLY TULIPS: Mixed colours, 9/- dozen. GLOBE TULIPS, yellow, white, wine, 1 each, 3/6. YELLOW CROCUS (true), 2/6 dozen. AUTUMN BELLS, for rock garden, white, 2/6 doz. New TURKESTAN TULIP MARGOLETTI, yellow splashed, red, 9d. each. 1500 other Bulbs available.

Get "THE WORLD'S BEST BULBS," 1/- posted. *The Finest Bulb Book in the Southern Hemisphere.*

PHILIP MONTAGUE

Bulb Specialist

FRANKSTON, VICTORIA

W. J. HAGGETT

370 PARRAMATTA ROAD
PETERSHAM

◆

Maker of fern tubs and casks to any size.

◆

Petersham 3074

BISSET'S ORCHIDS

FAMOUS THROUGHOUT THE COMMONWEALTH

ORCHID GROWERS ARE ASSURED OF OBTAINING QUALITY AND QUANTITY FOR THE SAME REASONABLE PRICES.

An Immense Collection from All Parts of the World of Bushhouse and Glasshouse Orchids, including Aerides, Calanthes, Cattleyas, Cypripediums, Cymbidiums, Dendrobiums, Miltonias, Phaius Phalaenopsis, Vandas, etc. Species and Hybrids. All Australian Orchids stocked.

HYBRID CYMBIDIUMS, CYPRIPEDIUMS AND CATTLEYAS, L.C., B.C., etc.

Hybrid Cymbidium, including all the very latest and best crossings, i.e., Midas, Louis Sander, Robin Adair, Amberley, etc.

3 and 4 years old plants—**15/- to 20/-**

5 years old, strong, ready-to-flower plants—**25/- to 30/-.**

Larger Specimens also on Hand.

Hybrid Cypripediums—An endless variety of the very latest and best crosses; good, strong plants, from **7/6** and **10/- each.**

Cattleyas, L.C., B.C., etc.—Ready to flower plants. **15/- to 20/-** (Four and Five Bulbs).

Stronger flower plants.—**20/- to 25/-.**

POTTING MATERIALS AND SUNDRIES:

Best Quality Todea Fibre, 3/6 per bushel bag (approximately 12lbs.)

Finest Growing Sphagnum Moss, 3/6 per bushel bag (approximately 12lbs.)

Celluloid Labels. Everlasting, 3/6 per 100.

Teak Baskets (all copper fastenings). 6in., 7in., and 8in., 1/4 each, or 15/- dozen.

Orchid Pots (with cut sides and holes for hanging), 4in., 3/6 per doz., 5in. 4/6 per doz., 6in., 6/- per doz., 7in. 8/- per doz

Postage or Freight Extra on all these Sundries.

Write for Free 52 Page Illustrated Catalogue.

Please enclose 2d. stamps for Postage.

Special attention given to packing on all Country and Interstate orders.

SPECIAL OFFER TO BEGINNERS OF SIX (6) ASSORTED ORCHIDS (Cypripediums and Dendrobiums), nice, healthy plants, for £1 (plus postage).

JOHN BISSETT, 48 Wereemba Street, Abbotsford, N.S.W.
General Nursery 1 Alfred Street, Leichhardt

Inspection cordially invited, day or night. 'Phone: Drummoyne 1124.

THE ORCHID REVIEW

- Founded in 1893, by the late R. A. Rolfe, of Kew. The only Journal dealing exclusively with Orchid Lore, featuring articles on the History, Cultivation, Hybridization, and all matters of interest to the Connoisseur, Amateur, and Trader.
- Exhibition Reports and Registration Records of new Hybrids accurately kept and published.
- Price, One Shilling and Sixpence, monthly, postage free. Back volumes and complete sets, bound or unbound, can be supplied from

ORCHID REVIEW LTD.
5 TAVISTOCK ST., COVENT GARDEN, LONDON, W.C.2

ORCHIDAL

A proven German Orchid Fertilizer which produces remarkable growth and magnificent dark, almost black-green, foliage.

PRICE: 6/- per ounce.
£4 per pound. Post free.

One ounce makes approximately 30 gallons fertilizer.

●

Sole Agents:

W. Hermon Slade & Co., Ltd.,

Manufacturing Chemists,
ROSEBERY AVENUE,
ROSEBERY

Postal Address: BOX 1540 D.D., G.P.O., SYDNEY.

BLACK & FLORY

SLOUGH

Cablegrams: "Orchids Slough"

●

Vigorous and clean plants in all sections.

Unrivalled in Hybrid Cattleya, Brassocattleya, Albino Cattleya and allied hybrid genera. Collections from £6 per dozen.

Cypripediums: The demand in recent years has exceeded the supply of this increasingly popular orchid, but we hope to make offers next spring from our large developing stock. We have distributed many of the best Cypripediums in cultivation.

Odontoglossum hybrids in fine plants and great variety at £3 per dozen.
Miltonias Odontiodas Cymbidiums

BOND'S
INDUSTRIES LTD.
ALL STATES OF AUSTRALIA

SPINNING MILLS AT WENTWORTHVILLE, N.S.W. HEAD OFFICE & FACTORIES: CAMPERDOWN, N.S.W

The Largest Manufacturers in
Australia of Men's and Women's
UNDERCLOTHING, HOSIERY &
HALF HOSE

Bond's Quality Garments are Stocked by all Drapers and Storekeepers Throughout Australia.

Mention the "Australian Orchid Review"—it identifies you.

If you are a flower lover, become a member of the Orchid Society of your own State; and join in appreciation of the climax of plants' evolution. Visitors welcomed at meetings.

•

Victorian Orchid Society

President:

T. C. ALSTON,
Batman House, 103 William Street,
MELBOURNE

Secretary:

F. W. CHILVERS,
5 Harcourt Street, Auburn, E.2
MELBOURNE

•

Queensland Orchid Society

President:

E. J. BEARD
10 New Zealand Chambers, 334 Queen Street,
BRISBANE

Secretary:

B. W. A. MOLLER
G.P.O. Box 269 D.
BRISBANE

Meeting Place:
MINIATURE RIFLE RANGE BUILDING,
Boundary Street,
BRISBANE

Wholly set up and printed in Australia by Shepherd & Newman, Ltd.,
Yurong Street, Sydney.

The Orchid Society
of New South Wales

Meets every month on alternate last Tuesdays and Thursdays,
in Room 507, Phillip House, Phillip Street, Sydney
at 8 p.m.

The dates of the next meetings of the Society are as follows:—

FEBRUARY: THURSDAY, 27th

MARCH: TUESDAY, 31st.

APRIL: THURSDAY, 30th.

MAY: TUESDAY, 26th.

JUNE: THURSDAY, 25th.

A hearty invitation is extended to all interested in Orchids to attend.

Communications regarding the Society should be addressed to:

T. H. JAMES,
67 Arabella Street,
Longueville.
'Phone, B6351

196.4-1

April-June 1936

Australian Orchid Review

Price 1/6

The Official Organ of
The Orchid Society of N.S.Wales.

OFFICERS

of

The Orchid Society

of New South Wales

●

President:

HIS HONOUR JUDGE H. F. MARKELL, K.C., B.A., LL.B.,
"Kooyong," Hastings Road,
WARRAWEE

Vice-Presidents:

C. A. JAEDE, M.B.,
4 Rodey Street,
MASCOT

REV. H. M. R. RUPP, B.A.,
The Rectory,
RAYMOND TERRACE

Hon. Secretary:

T. H. JAMES,
Arabella Street,
LONGUEVILLE

Hon. Treasurer:

L. F. HAWLEY,
12 Seaview Street,
SUMMER HILL

Committee:

E. A. HAMILTON,
16 Hercules Street,
CHATSWOOD

S. C. JAMES,
39 Duntroon Avenue,
ROSEVILLE

Journal Sub-Committee:

C. A. GOSPER,
View Street,
LANE COVE

G. H. SLADE, B.Sc.,
"Raiatea," Oyama Avenue,
MANLY

R. M. STEWART
14 Bannerman Street,
NEUTRAL BAY

AUSTRALIAN ORCHID REVIEW

Volume 1 April-June, 1936 No. 2

●

Contents

A Convert 15
Aids to Orchid Culture 16
Cool House Orchid Culture for May and June 30
Cultural Notes for May and June 20
Cultural Notes for Cattleyas 30
Cypripediums in Southern Queensland 8
Cymbidiums and Their Simple Culture 23
Cymbidium Canaliculatum 28
Dendrobium Phalaenopsis 25
Editorial 5
Electrical Heating of Glass Houses 13
Information Bureau 19
Letter from Sir Jeremiah Colman 7
Letter from North Queensland Naturalists' Club 31
Notes on a Trip to Java 17
Our Terrestrial Orchids 21
Orchid Tit-Bits 26
Reports of Proceedings of Society 6
The Orchids of Thursday Island 27
Visit of Mr. E. W. Cooper 11

INDEX OF ILLUSTRATIONS

A Group of Meltonias 19
Brassocattleya Fabia (Garden hybrid) 17
Cymbidium Memoria. P. W. Jansen's (Garden Hybrid) 23
Cymbidium Madeline (Garden Hybrid) 4
Cypripedium insigne—Harefield Hall Variety 9
Cirrhopetalum Medusae 29
Diuris sulphurea R. Brown 21
Diuris aurea Sm. 21
End View of Complete Heating Unit 14
Heating Installation in Glass House 13
Laeliocattleya Canada (Garden Hybrid) 7
Pterostylis grandiflora. R. Br. 22
Thelymitra ixioides. Swz. 22
Vanda Sanderiana 29

Subscription: 6/- per year, post free.

BISSET'S ORCHIDS

FAMOUS THROUGHOUT THE COMMONWEALTH

ORCHID GROWERS ARE ASSURED OF OBTAINING QUALITY AND QUANTITY FOR THE SAME REASONABLE PRICES.

An Immense Collection from All Parts of the World of Bushhouse and Glasshouse Orchids, including Aerides, Calanthes, Cattleyas, Cypripediums, Cymbidiums, Dendrobiums, Miltonias, Phaius Phalaenopsis, Vandas, etc. Species and Hybrids. All Australian Orchids stocked.

HYBRID CYMBIDIUMS, CYPRIPEDIUMS AND CATTLEYAS, L.C., B.C., etc.

Hybrid Cymbidium, including all the very latest and best crossings, i.e., Midas, Louis Sander, Robin Adair, Amberley, etc.

3 and 4 years old plants—**15/- to 20/-**

5 years old, strong, ready-to-flower plants—**25/- to 30/-.**

Larger Specimens also on Hand.

Hybrid Cypripediums—An endless variety of the very latest and best crosses; good, strong plants, from **7/6** and **10/- each.**

Cattleyas, L.C., B.C., etc.—Ready to flower plants. **15/- to 20/-** (Four and Five Bulbs).

Stronger flower plants.—**20/- to 25/-.**

POTTING MATERIALS AND SUNDRIES:

Best Quality Todea Fibre, 3/6 per bushel bag (approximately 12lbs.)

Finest Growing Sphagnum Moss, 3/6 per bushel bag (approximately 12lbs.)

Celluloid Labels. Everlasting, 3/6 per 100.

Teak Baskets (all copper fastenings). 6in., 7in., and 8in., 1/4 each, or 15/- dozen.

Orchid Pots (with cut sides and holes for hanging), 4in., 3/6 per doz., 5in. 4/6 per doz., 6in., 6/- per doz., 7in. 8/- per doz

Postage or Freight Extra on all these Sundries.

Write for Free 52 Page Illustrated Catalogue. Please enclose 2d. stamps for Postage.

Special attention given to packing on all Country and Interstate orders.

SPECIAL OFFER TO BEGINNERS OF SIX (6) ASSORTED ORCHIDS (Cypripediums and Dendrobiums), nice, healthy plants, for £1 (plus postage).

JOHN BISSETT, 48 Wereemba Street, Abbotsford, N.S.W.
General Nursery 1 Alfred Street, Leichhardt

Inspection cordially invited, day or night. **'Phone: Drummoyne 1124.**

BLACK & FLORY

SLOUGH

ENGLAND

Cablegrams: "Orchids Slough"

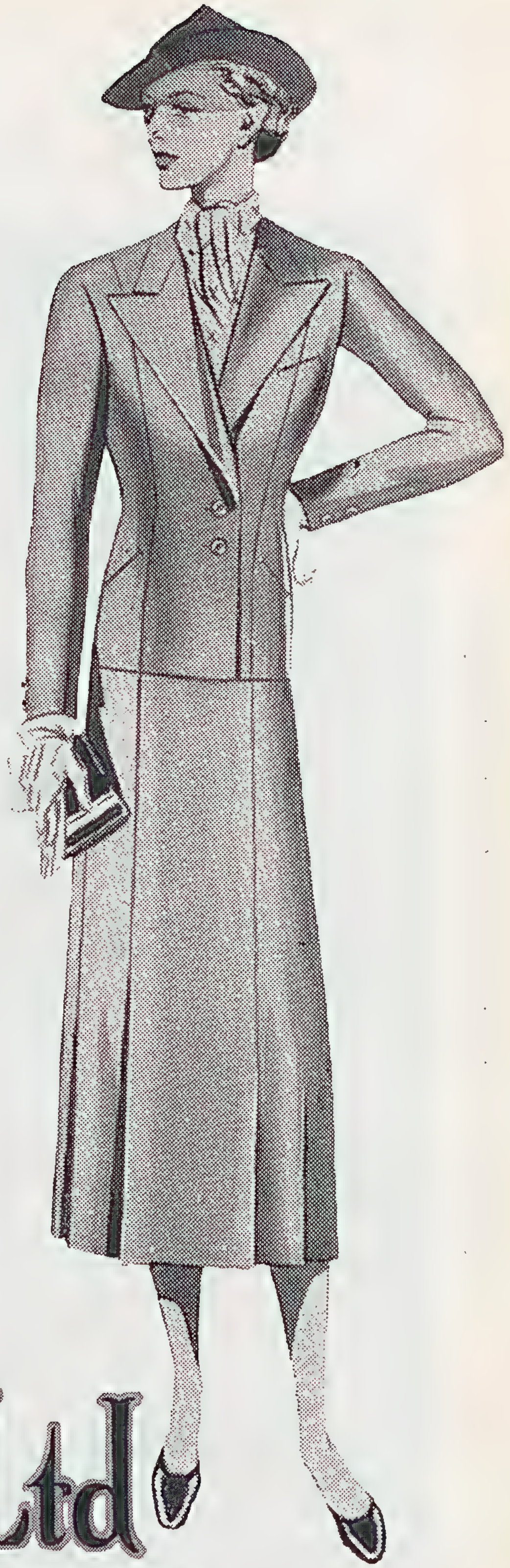
●

Vigorous and clean plants in all sections.

Unrivalled in Hybrid Cattleya, Brassocattleya, Albino Cattleya and allied hybrid genera. Collections from £6 per dozen.

Cypripediums: The demand in recent years has exceeded the supply of this increasingly popular orchid, but we hope to make offers next spring from our large developing stock. We have distributed many of the best Cypripediums in cultivation.

Odontoglossum hybrids in fine plants and great variety at £3 per dozen.
Miltonias Odontiodas Cymbidiums



Tailoring
for **Women**
by **Men** -

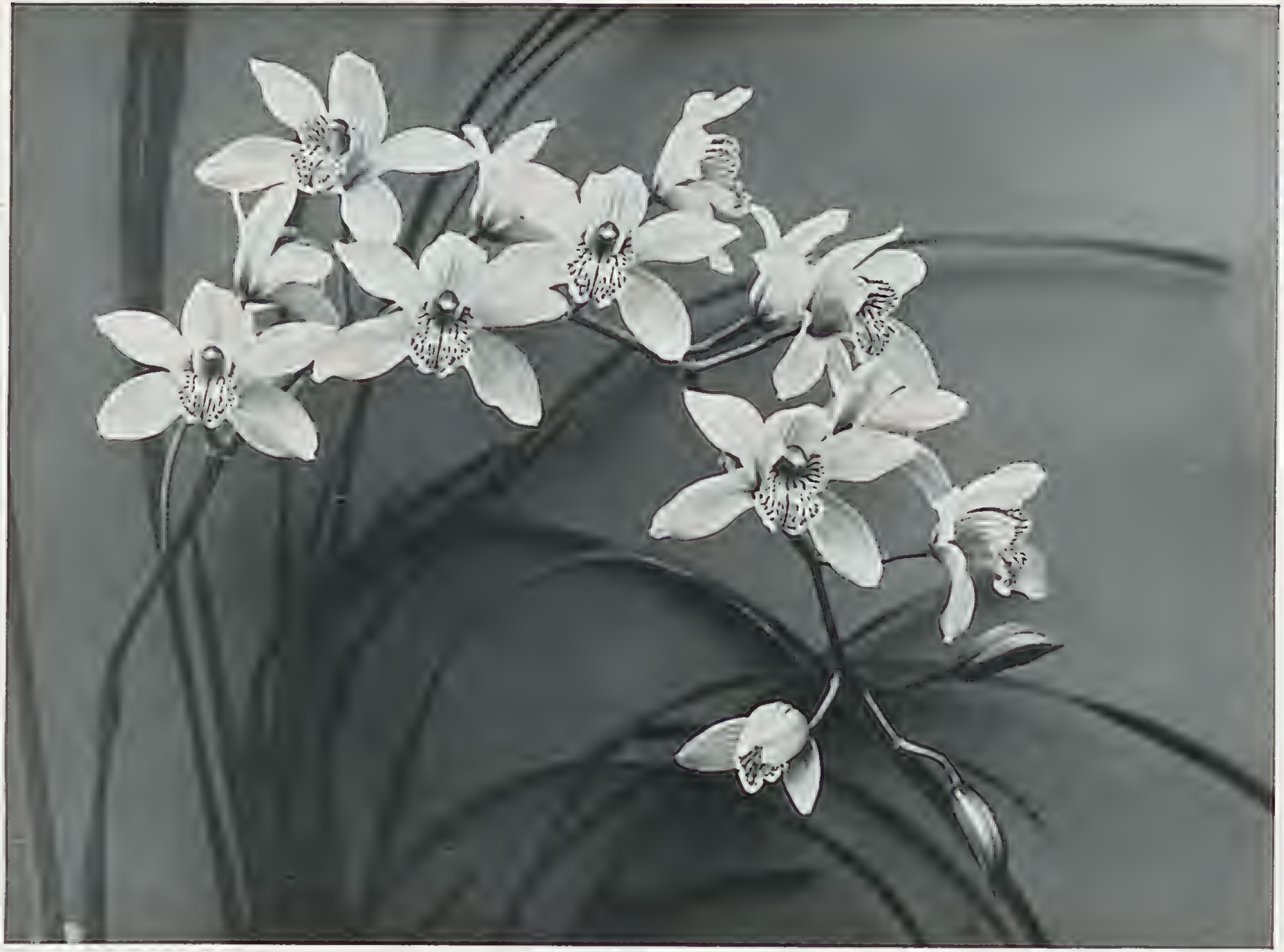
Women are demanding Suits -
Man Tailored. Because— - -
They get that Tailored look -
Mannish Lines and Perfect Fitting
Coats and Skirts - - - - -
Tailored to your Measure - -
by Experts from - - - - -

£5/5/-

Private Fitting Rooms
Latest Style Books
Daylight Showrooms

City Hatters Ltd
HIGH CLASS TAILORS
239 PITT STREET, SYDNEY.

CYMBIDIUM MADELINE (Garden hybrid)



This beautiful example of a hybrid Cymbidium was raised from seed, grown and photographed by Wilhelm Schmidt, Turramurra, N.S.W. Cymbidiums are admirably suited to our climate, and will grow to perfection in tubs with good drainage, with the protection of some light shading such as that provided by a deciduous tree. The parents of this hybrid are Pawelsii and insigne. Pawelsii is Lowianum x insigne; and the high proportion of insigne in the hybrid illustrated, is apparent in the pink colouration and the beautiful marking on the lip.

Australian Orchid Review

Editorial

Something Unique

● In a very interesting letter published in this issue, Sir Jeremiah Colman makes a suggestion which should stimulate Orchid growers in Australia along a line of research which offers great interest, and the probability of producing something quite new.

Sir Jeremiah states that if a cross can be obtained between *Dendrobium infundibulum* and *Dendrobium Sanderii* or *D. Dalhousieanum, D. Wardianum,* or *D. formosum,* something of which one can be justly proud, may be produced. He also suggests that if *D. Regium* or one of the hybrids from it are available, and these can be successfully crossed with any of the *Dalhousieanum* species or hybrids, particularly *Gatton Sunray,* he would anticipate something beautiful and unique.

It is certain that some of our Australian enthusiasts would endeavour to hybridise on the lines suggested, and the results will, it is hoped, be available for the general interest of Orchid lovers.

Sir Jeremiah Colman's suggestion with reference to Indian *Dendrobiums,* stimulates another line of thought. It would be also very interesting and informative, as well as a contribution to science, to carry out some investigation as to the possibility of hybridising some of our better known and hardier Australian species with the more delicate and beautiful species from the tropics.

The possibilities of producing plants possessing the rare beauty of exotic species with the hardy qualities of some of our Australian ones, offer a wide field for research. Not the least interesting probability of the results of hybridisation on these lines, is the fact that a wider and more general interest in Orchids may result, due to the fact that plants may be produced of a sufficiently sturdy yet beautiful character that garden lovers, apart from Orchid enthusiasts, would endeavour to cultivate them, and would find that such was possible without the necessity of the higher and more technical cultural methods necessary for the tropical species.

There are some other exotic species which are almost as hardy as our own natives, and which may be used as parents. Almost all *Cymbidiums* fall in this class, as well as *Epidendrums* of the *Arachnoglossum* type. *Cymbidiums* are very popular to flower lovers, and well known varieties of *Epidendrums* in Sydney gardens are: *E. radicans, E. O'Brienianum,* and the most beautiful, *E. Boundii* and *E. Lilac Queen.* These *Epidendrums* will cross readily with the more delicate and beautiful *Cattleyas,* which can only be grown in glass houses.

By making a careful selection of our native *Dendrobiums* and of hardy American species as parents, we may be able to produce hybrids with the distinctly different beauty of the American and Indian tropical Orchids, and thus have the joy of our favourite greenhouse Orchids in the open garden, and at the same time within the cultural reach of all.

Hybridising will, in all probability, yield plants of unexpected beauty in a field which has hardly yet been attempted, especially if it is carried out in a scientific manner, concentrating on producing plants of maximum beauty which will flourish in the outdoor Australian garden.

Reports of Proceedings for preceding four months

● The December meeting of the Orchid Society of New South Wales was, on account of the festive season, held at the Chelsea Book Club, in Market Street.

The Rev. H. M. R. Rupp occupied the chair.

Mr. J. P. Thomas, of Woollahra, was elected a member.

An article on Orchids generally was received from Mr. H. J. Solomon, of Darling Point. This was read to the members.

As those present at the meeting did not appear to be in a mood for business, the evening was then given over to social matters and refreshments.

The exhibits comprised:

Coelogyne speciosa	Mr. C. Gosper
Thunia Marshalliana	Mr. T. H. James
Aerides Fieldingii	Mr. W. Worth
Cypripedium callosum	Mr. W. Cabban
Oncidium luridum	Mr. C. Cambourne
Cattleya gigas	Mr. J. Bisset
Cypripedium Io grande	„
Cypripedium Harrisianym (Bull's var.)	„
Cypripedium Triumphans	„
Miltonia Princess Mary	Dr. A. C. Burstal
Oncidium ornithorynchum	„
Brasso-Cattleya Heather Queen	Mrs. E. M. Mitchell

● Meeting on January 30, 1936, at Phillip House, the Rev. H. M. R. Rupp occupied the chair and there were 40 members present.

Mr. E. W. Cooper, of Sanders & Co. Ltd., St. Albans, England, was present, and the evening was taken up by questions from members and Mr. Cooper's replies thereto.

These questions and replies are being arranged into a number of groups and will be published in the *Australian Orchid Review* from time to time.

Exhibits—

Cypripedium Our Prince	Mr. J. Bisset
Cypripedium Maudiae Magnificum	„
Cypripedium callosum	Mr. W. Palmer
Cypripedium Mona	Mr. W. Cabban
Cymbidium bicolor	Mr. H. Cambourne
Cattleya Argus	Mr. H. Trinder
Cypripedium barbatum	Mr. G. Cowlishaw
Cypripedium resplendum	„
Dendrobium (?) (New Guinea)	Mr. H. Porter

● The February meeting of the Orchid Society of New South Wales was held on Thursday, 27th at Phillip House. It was a particularly enthusiastic meeting, the attendance being 48.

Six new metropolitan and two new country members were elected.

The President, in referring to our Journal, *The Australian Orchid Review*, made a plea for articles and photographs for publication in *The Review*. This plea is extended particularly to country members, articles from whom would be specially interesting on account of the different conditions to those obtaining at Sydney.

Mr. J. Bisset presented a plant of *Cymbidium Louis Sander* to the Society. This was raffled and the proceeds totalled £1/17/-.

The principal business of the meeting was an address by our President, Judge Markell, in which he recounted his experiences during a recent trip to Java. This address is published in this number of *The Review*.

Mr. E. W. Cooper, of Sanders & Co., England, was again present and answered questions from members, which will be associated with those of the previous meeting, and published in *The Review*.

Exhibits—

Vanda coerulea	Mr. T. H. James
Vanda coerulea	Mr. H. E. Smart
Cypripedium Charlesworthii	„
Cattleya Stoneyware	Mr. J. Bisset
Cypripedium Van Dyk	„
Cypripedium Callosum	„
Cypripedium Elise x Bectoniae	„
Cattleya Hardyana x Enid	Judge Markell
Brasso-Cattleya Cluny	„
Cypripedium Charlesworthii var.	Mrs. E. M. Mitchell
Cattleya Dowiana x Constance Wigen	Mr. W. Schmidt
Cypripedium callosum	„
Sarcochilus Blumei	Mrs. C. A. Messmer

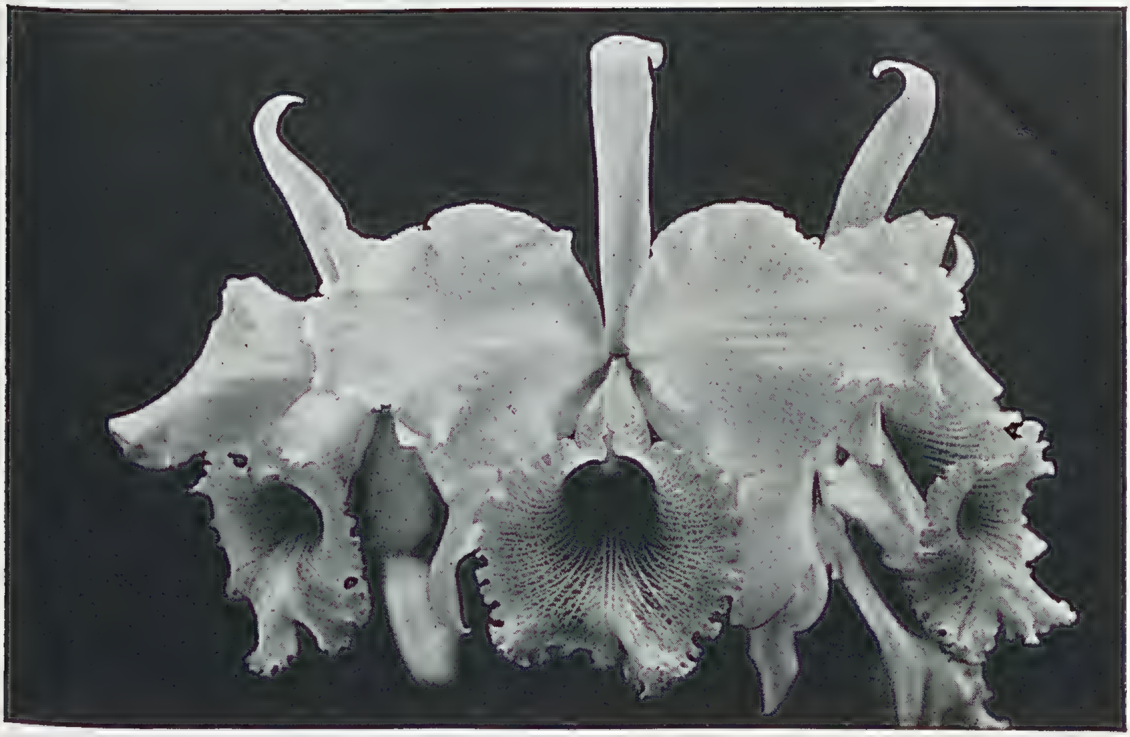
● The usual monthly meeting was held on Thursday, 30th April, there being 31 present. The President occupied the chair.

Among the correspondence received was a letter from the Newcastle District Horticultural Council suggesting that this Society stage an exhibit of Orchids at the Newcastle Spring Show to be held on 11th and 12th September next. The matter will be further discussed at later meetings.

Exhibits

Laelia Anceps	Mr. P. Gilbert
Cypripedium Thadia	Mrs. L. M. Thompson
Cypripedium Spicerianum	„
Cypripedium Fairrieanum	„
Cymbidium Mastersii	„
Cypripedium Tonsum	Mr. T. H. James
Cypripedium Maudiae magnificum	Mr. Newman
Odontioda Talma	Judge Markell
Vanda Sanderiana	„
Catesetum macrocarpum	Mr. H. Taylor

The next meeting will be held on Tuesday, 26th May.



LAELIOCATTLEYA CANADA (Garden hybrid)

A fine example of the hybridiser's art, combining the beautiful shape of the Cattleya with the wonderful lip of the Laelia. This is another plant of Mr. W. Schmidt's, of Turramurra, and was raised from seed and flowered by him.

A Letter from Sir Jeremiah Colman

President. Orchid Committee of the Royal Horticultural Society, London

The *Australian Orchid Review* duly reached me on the 25th. You ask me to express my views upon it. I feel that you should be congratulated, both the get-up and the contents commending themselves to me very much. I trust that the initial number will be followed by many others equally good.

You also ask me to offer some comments on the contents. In many ways they are extremely interesting to me. I have both *Sarcochilus Hartmanii* and *S. Fitzgeraldii* in my houses. They are supposed to be very difficult to grow in this country, but I have been growing my plants since 1910, when Mr. Bartels, of Brisbane, sent them to me. I have been looking at a plant this afternoon and imagine it is exactly the size of the one which you have illustrated on page 4. It flowers very profusely, but I do not think the trusses are so full of bloom as in the one illustrated, being much more like the little truss on the right. You express some doubt as to the varieties and species, and I think it worth mentioning that under date of February 5, 1935, I received a letter from a Mr. H. F. Philp, of 327 River Street, Ballina, in which he makes reference to both these varieties, and says that he has seen on a cliff the plant in flower covering an area of "at least 300 yards long." It occurs to me that you might get the information you require from him.

I am also much interested in *Dendrobium Artemis,* which you illustrate. It is one of the earliest of my raisings and I gave it the name "Artemis" to find it had to be corrected afterwards to "The Gem," someone having previously registered that name. I raised it in 1901. I have raised over 1,000 hybrids, and this one is No. 2. This is illustrated in the *Orchid Review* of March, 1906. It was a special variety and it is rather interesting to note that it was the parent of *Dendrobium Lady Colman,* which obtained a first-class Certificate in 1914 and a silver medal at the Ghent Quinquennial Show in 1913, and is acknowledged to be the finest typical *Dendrobium* of the *nobile* section ever raised, although we have since raised *Huia* bearing a Maori name and *Gatton Monarch,* which closely rival it. I can probably claim to have raised a greater variety of *Dendrobiums* than anyone else. *Illustre Florence Bartels* and *Bartelsianum,* named after a man you would know, who was designated the Orchid king of Australia, are amongst them, and it may interest you to know that the seed which produced these was sent to me by Mr. Bartels from Brisbane, I having sent out one of the parent plants because we thought the seed would not ripen on this side.

Your illustration of *Dendrobium infundibulum* leads me to suggest that your growers should use this as a parent. If you can get a cross between it and *Dendrobium Sanderii* or *D. Dalhousianum, D. Wardianum,* or *D. formosum,* you will, I think, find you have something to be proud of. Should you have *D. regium* or one of the hybrids therefrom and can get that to cross with any of the *Dalhousianum* species, particularly *Gatton Sunray,* I should anticipate something beautiful and unique. We grow quite easily *Cymbidium Devonianum,* which you also illustrate.

Yours faithfully,
JEREMIAH COLMAN.

P.S.—Since writing the above, I have had a lengthy discussion with my Orchid grower. *S. Fitzgeraldii* is in flower with many sprays. One is a truss of fourteen blooms, and another of ten, so it is very similar to the one you illustrate. I find it corresponds exactly with your description, with the exception that the spots are certainly not maroon—I should describe them as rose, or rather deep pink. In respect to *S. Hartmanii,* ours is not the pure white variety, but each flower has a ring of maroon spots. If you have a plant of the pure white one to spare, I should like to have it. In fact, I should like a plant or two of each variety, as they are very pretty when in flower. Our experience does not agree with yours in respect to *Hartmanii* wanting sun.

We know nothing of *S. Rubicentrum.*

Can you tell me where *Cymbidium elegans* can be obtained? It is new to me.

[The plants in question are being sent.—EDITOR.]

Cypripediums in Southern Queensland

E. BECKLEY, *Brisbane, Queensland*

● For the purpose of culture in the Brisbane climate all *Cypripediums* are very similar in their requirements, but it is well to bear in mind that "warm" sorts are rather out of their temperature on a cold Brisbane night; therefore the warmest place should be found for them. *Cypripediums* do not like cold winds.

Warm species would be *barbatum, bellatulum, Curtisii, Haynaldianum, Lawrenceanum,* etc. Cool species, *insigne, Charlesworthii, Spiceranum, villosum, venustum,* etc.

Selenepediums also might be regarded as "warm," as they require a warm, moist atmosphere during the winter. In the Sydney Gardens they are grown elevated close to the glass, and appear to like rather more light than ordinary *Cypripediums.* They may be distinguished by the foliage, which is always green, long, strap-like and ending in a sharp point. They flower at almost any time and bear a succession of blooms, one falling off as another forms to take its place. They are of South American origin, and therefore a *Cattleya* house should suit them. They are not, however, popular nowadays. No doubt the marvellous hybrids raised by tens of thousands from the cool species have a lot to answer for in this respect, also the fact that the flowers fall makes them disappointing as cut flowers.

Hybrids.—As mentioned, many thousands have been raised, and it may safely be said that man has improved on Nature, for most of the hybrids are not only easy to grow, but are really a marvellous improvement in the species.

Of course they have been crossed and recrossed until some plants contain a touch of many species. It is very interesting to note the influence of the species in hybrids and to see how the hybridist has by selection actually improved their characteristics. For instance, the magnificent white dorsal that we often see is undoubtedly derived from *Spiceranium,* but improved in size and shape. *Charlesworthii* may be seen in the rose-coloured dorsal of many hybrids. The drooping petals of others surely come from that fascinating flower *Fairrieanum.* The glossy

CYPRIPEDIUM INSIGNE HAREFIELD HALL VARIETY

There is no Orchid more popular or more easily grown than Cypripedium insigne, and a collection could be made of this plant and its numberless varieties alone. Harefield Hall is regarded as one of the finest that has yet appeared, with its fine, wide dorsal sepal and broad, white band with purple spots so characteristic of Cypripedium insigne and its varieties. This variety is as easily grown as the ordinary Cypripedium insigne and will succeed admirably out of doors.

varnished finish of some hybrids is due to *villosum.*

I have said that these hybrids are easy to grow and flower, but of course there are exceptions, and some are much slower than others and shy at flowering, especially the *bellatulum* crosses. No doubt it is a matter of striking the right conditions, and possibly if one could keep the summer flowering sorts warm in the winter when they should be growing vigorously, the flowering of such plants would be more satisfactory. Apart from that, however, some are naturally free-flowering, such as *Maudiae,* which often flowers twice a year. *Baron Schroderae,* a beautiful flower, is notorious as a shy flowerer.

Now a few words on the culture of *Cypripediums*—but perhaps I had better try and describe my house, so that you will better understand my ideas. All my Orchids are grown under glass, not with a view to conserving heat, but merely as a protection from excessive rain, drying winds, and insect pests. The width is 10 ft. 6in., and the ridge is 9 ft. 6in. over the centre path. One side wall is 5 ft. high and the other 7 ft. 6 in. This makes a three-quarters span roof. Along the ridge I have a 1 ft. space covered with gauze. This cannot be closed and the rain drops through on to the floor but not on to the plants. At the top of the 7 ft. 6 in. wall I have another 1 ft. space covered with gauze, and near the ground are six large ventilators also gauze covered. The door at present is hessian. So that although I have a glass roof, I have nearly as much air as outside, and, of course, the plants retain moisture longer. The stages are 1 in. x 1 in. hardwood laid on 3 in. x 2 in. bearers, and spaced, and the floor is coarse ashes kept damp. On the side of the 5 ft. wall I have my *Cypripediums* about 2 ft. from the glass, which is frosted rather heavily. I have ½ in. wire-netting fixed about 9 in. from the glass, and on this I lay banana or palm leaves in summer to keep the glass from getting hot. On the high wall side I suspend my *Dendrobes, Cattleyas,* etc., and the tall *Vandas* stand on the bench. This house has not been built twelve months, but so far I am quite pleased with it, and I have certainly beaten those moths which lay eggs in the flower buds, also grasshoppers and *Dendrobium* beetles, which I have often caught eating young growths.

Returning to my subject, I wish to point out that although *Cypripediums* are called ground Orchids, they actually grow on rocks and trees in their native habitat. Nature provides seed in countless thousands from a single pod, and those which find a favourable place germinate and the roots seek fissures in rocks or bark in search of humus and moisture. This gives the clue to cultural requirements, and it follows that whatever compost one prefers, it must be very porous and well drained. I have for years used pieces of staghorn peat and charcoal, about equal proportions, packed tightly in the pots. Any plants which are in poor health—leaves limp and yellowish—roots gone west—can be brought back by treating in this way, provided watering is carefully done. Water when the peat is getting dry, and not before.

The best time to re-pot is September, and by Christmas you will see root growth in evidence.

The following year one could re-pot or top-dress with whatever compost one might prefer. So long as the compost contains a little nutriment and is porous and well drained, the plants should thrive. I always use small pots. The only fault with the peat and charcoal compost I have mentioned is that it lacks plant food. It certainly promotes root growth. I do not care to advocate any particular compost, as perhaps there is not an Orchid subject upon which may be found more varied opinion and practice. I have read of a large establishment which uses nothing but sphagnum moss, adding more as the old rots down. Another swares they thrive on leaf-mould. Many use fibrous loam with fibre, moss and broken crocks.

Early this season I top-dressed all my *Cypripediums* with sphagnum moss, but I find this induces root formation on the surface which is undesirable, and is therefore a mistake. If sphagnum is used, it should be in the compost, or, better still, over the drainage, which, of course, should be placed in the pots vertically in accordance with modern practice. It is a good plan if using ordinary pots to enlarge the hole, thus admitting air more freely, and to stand each plant on an inverted pot.

In potting plants, they should be packed tightly, so that when finished one can lift the plant by the leaves without the pot dropping off. *Cypripedium* roots are very brittle, and it is difficult to re-pot without breaking them. Therefore top-dressing is often adopted, removing as much compost as possible and replacing with new. Some *Cypripediums,* such as *bellatulum* and *Fairrieanum,* and hybrids of these, like limestone in the compost, and as drainage instead of crocks. *Fairrieanum* is said to have a poor "*constitution.*" I certainly found it a weak grower; but I only had a small piece.

Pests.—The chief pest we have to contend with is, I think, thrip. This is undoubtedly encouraged by dry conditions, but if the plants are kept in a moist atmosphere and well sprayed between the pots daily, there will be little trouble. Since, however, it is almost impossible to detect the insects before the damage is done, a good safeguard is to spray between pots and overhead about once or twice a month with nicotine, 1 oz. to the gallon. This will not hurt anything, but will make the user feel a bit "choky" if used in a closed house. Use a fine nozzle and do it thoroughly—the fumes kill the insects. Plants that have been attacked by thrip have rusty-looking marks in the foliage. It is likely to be prevalent in heated houses and can easily be introduced by plants obtained from the South where it is very prevalent.

Scale.—A soft brown scale sometimes appears on the leaves. Volk or White Oil Emulsion would be effective, but I prefer to clean the plants with a soft shaving brush or sponge, because you can do it thoroughly and get rid of the pest, whereas by spraying you are bound to miss the under sides of the leaves. Once get your plants free and you will have little trouble, provided a sharp look-out is kept. The most serious scale is known as Red Scale. It is very deadly and cannot be killed by any known spray. The only remedy Orchid growers can use is hand cleaning, using soap and nicotine with a tooth brush. If plants are badly infested, the leaves soon become covered and turn yellow. Citrus growers use cyanide fumigation, but that is hardly suitable for Orchids. Red Scale is a small round and flat vermilion coloured scale about the size of a pin's head, and must not be confused with Pink Wax Scale, which looks liks lumps of pink wax and can easily be killed by spraying with hot soda water. It infests many plants, but I have never seen it on Orchids, and should not care to use soda water on them.

Snails and Slugs may be poisoned by using bait made of sugar and arsenate of lead mixed with water and then dried up with bran until it is like wet sawdust. This can be broadcast beneath the stages or between the plants. It is also sure death to cutworms and wireworms. Lime water is also a good remedy for slugs.

Propagation is effected by division, but only strong plants with at least two flowered growths behind each break should be divided. Dividing smaller growths means very slow progress and great care for a long time. The correct time for division would be after flowering, usually September in most cases.

Cypripediums, like all other Orchids, should not be watered until they are getting dry, but should not be allowed to go bone dry at any time. They always benefit by frequent damping between the pots and a light dewing overhead, except in dull, cold or rainy weather. I like to water thoroughly on Sunday and then damp down every morning during the week. In the summer a mid-week watering is required. If you are able and sufficiently active, you can damp down several times a day with benefit.

(*To be continued.*)

Visit of Mr. E. W. Cooper

● *Mr. E. W. Cooper, of Sanders & Co., Ltd., St. Albans, England, the well-known Orchid firm, who visited Australia recently, attended by invitation the January and February meetings of the Orchid Society of New South Wales. The various matters discussed at the meeting have been divided into groups and, after Mr. Cooper's opening remarks, they are set out in the form of questions and answers.*

Mr. Cooper's comments and valuable advice relating to "Orchid Mules"—or should it be "Mulish Orchids"?—and that vexed question of "Temperature," are given in this number.

Mr. Cooper,—

● Mr. Chairman, Ladies and Gentlemen,—I must thank you very sincerely for your Hon. Secretary's kind invitation to be present to-night and for the very pleasant welcome you have given me. I am very pleased to see such a strong muster of Orchid lovers in this city in far Australia. Coming from England, everything here is exactly opposite. In England now they are having snow, fogs, hail and everything else that is uncomfortable—except nice roaring fires. I am able to get here huge peaches at 2d. each which my "better half" appreciates, as we pay two to three shillings each for them on the other side. I see about me flowers which we would be cutting in June and July.

I do hope that I can be of service to you, but at the same time I am hoping to learn quite a lot myself. Conditions here are so different from those obtaining in England, and you can grow Orchids out of doors that we have to coddle. Everything to me is reversed and makes me put the "grey matter" to work.

Here, as everywhere, there is a certain charm about an Orchid, whether its flowers be small or large. There is something about its shape, its colour, and the way it has adapted one particular petal to give access to one insect and refusal to another, that intrigues us more with an Orchid bloom than with the flower of any other class of plant. Very few plants have adapted themselves to the extremes that an Orchid has and yet kept their floral beauty and charm. I will not take up any more of your time, and if you will ask me questions, I will answer them to the best of my ability. I hardly know what to tell you that would interest you about the English collections, but perhaps in the course of the evening, if there is anything you would like to know, then please ask. Hold me entirely at your service.

Orchids which Refuse to Flower.

Q.—Are there such things as mules in the Orchid family—plants that either won't flower or cannot flower? I have quite a number—they grow particularly well, make fine growth, are apparently very healthy, but they will not flower. Year after year they make this growth. They have a good rest—I do all I possibly can in the way of resting, etc., but they seem to produce just what may be termed "blind bulbs" year after year. What is your experience, Mr. Cooper, in this direction? Are there such things which cannot ever flower, or can they be made to flower?

A.—The purpose of all plants, and, in fact, of all life, is to propagate their kind, and if a plant can grow and propagate itself without flowering and gets too easy a living, it does not go to the expense and trouble of flowering.

Regarding *Cattleyas.* There are many which, as species, grow freely. The hybrid *Cattleya* of to-day, however, differs slightly from the species. It is derived from two different parents, both of which may have different resting and flowering periods, and consequently it is difficult to obtain periods of complete rest. Some Hybrids, therefore, may not flower freely. If you have plants which grow too strongly and keep on growing, do not wait till the bulb has finished before you dry them, but before that stage has arrived, withhold water and give them an extra amount of light, even if the leaves lose a certain amount of chlorophyll, and allow the plants to remain quite dry. You will then get them to flower, and once you get that result, do not cut the blooms off, because, remember, that when a plant flowers it not only flowers but endeavours to seed, and repeats the process every year. You cut your flowers far too soon here and thus frustrate the plant's natural objective. It is very advisable to remove the flowers early when the plant is weak, but not when it is growing vigorously. If you would flower these obstinate *Cattleyas,* wait till the growth is nearly finished and then dry them. You will find that when they do not flower they are being treated too kindly. It may need some rougher treatment, so we must treat them accordingly to make them flower.

Another thing I would suggest is, do not repot them. Let them grow right over the side of the pot on nothing. It is practically a law of nature that a plant tries to reproduce itself by flowering before it dies. You pull a weed up from a bed and throw it on the path, and if there is sufficient moisture on the ground to allow the roots to grow, that plant will produce flowers and seed, while the plants that were left growing in the ground are in the bud stage or possibly not even so far advanced as that. The interference with its normal growth has forced the plant to make an effort to reproduce its kind. Therefore, if a plant be reluctant to flower, the only thing to do is to illtreat it. Do not re-pot it—dry it, and live in hope.

Glass House Temperatures.

Q.—Out here many of us have glass houses, and with our mild climate it is not difficult to maintain any temperature we may require, but I would like to know how, in England, with a cold wind blowing and the temperature down to nearly zero outside, you keep your houses up to 60 degrees in the winter time, day and night?

A.—As to keeping heat up in England, let me tell you a tale about Mr. Sanders. I was in his nursery one cold morning and said "Good morning" to him. He did not answer. I said "Good morning," again, but he did not answer, which was quite contrary to his customary manner. "Is anything the matter, sir?" I added. He said: "Look at that heap of coal—£120 worth being burned every week, and nothing being sold."

If we get a very severe frost usually there is not much wind, but if we get a temperature 10 to 12 degrees below freezing point, with a cold wind blowing, our only method then is to put curtains, blinds, or something of that kind over the glass on the windward side and keep the pipes as warm as we dare. But I must digress in answering this question. Pipes should never be heated so much that you cannot bear your hand on them. Unfortunately, with sharp frost and a cold wind, we have to do so. A dry plant does not feel the cold as a wet one does, therefore, in such conditions, we do not damp a house—we protect where we can with curtains or blinds, and then the fire is kept going as steadily as possible; also the house should not be entered too often to allow the warm air to escape. If you can keep your house to 50 degrees or even a little lower, it will suffice, except for a few species which cannot thrive except in a higher temperature, and these would require special treatment.

If you anticipate sharp weather, do not water, do not damp your house, and protect your plants as much as you can by natural means. As to *Cattleyas* here, I do not know what your minimum temperature is in the winter, but I take it that around Sydney frost is the exception, and therefore it should be possible to grow them easily, with very little artificial heat, and that not turned on every day in the winter, but that would, of course, have to be determined by circumstances.

Q.—The minimum temperature around Sydney is 28 degrees, that is, four degrees of frost, but about one year in five we have what we call a high frost. The last such frost followed a cloudy night and consequently was unexpected. It was particularly severe and many of my plants were killed. What would you suggest in such cases?

A.—The frost would, I understand, disappear at the latest by 9 a.m., and if bright sunshine should follow the house should be opened up, as otherwise the temperature might reach 80 degrees and so start growth. You should not use the shades in winter, as the fullest possible light is then essential.

There is one good dodge with Orchids if a frost of only short duration be expected, and that is, cover your plants with paper. Dry newspapers will save them. Tuck them down, and if you have a fairly warm day or afternoon, you then keep that natural heat shut in, and you will find that under the paper there is no frost.

Q.—With a fairly dry atmosphere and frosty night and a morning temperature of, say, 35 degrees, would it be safe to shut the house up tight at night and dispense with heat?

A.—For *Cattleyas*, 35 degrees is too low, but if you could shut a little natural heat in the house and then cover the plants with paper, it would save heating. It should not be very much trouble because it would have to be done only once in a while, whereas in England, we get six months of that weather. If you have a pipe, however, turn the heat on. If not, cover your plants with some non-conducting material which will keep in the natural heat. Sun in the winter warms up your house by natural means.

Again let me repeat—a dry plant will stand much more cold than a wet one.

Another point—if *Cattleyas* have been accustomed to a winter temperature of from 45 to 50 degrees, it is unsafe to allow it to reach as low as 35 degrees. Once you try to grow, in a cold house, an Orchid which has adapted itself to heat continually, that plant will not thrive. Also if you grow cold-loving plants in too warm an atmosphere, they will grow quickly, but soon deteriorate. If you are in a region where the summer temperature varies between 60 and 80 or 90 degrees and then drops in winter to 32 degrees, your Orchids will do very well if you maintain a winter temperature of 40 to 50 degrees, but if you keep them in a minimum Winter temperature of 60 degrees, they will not thrive, as that temperature is not low enough to ensure a complete rest.

(*To be continued.*)

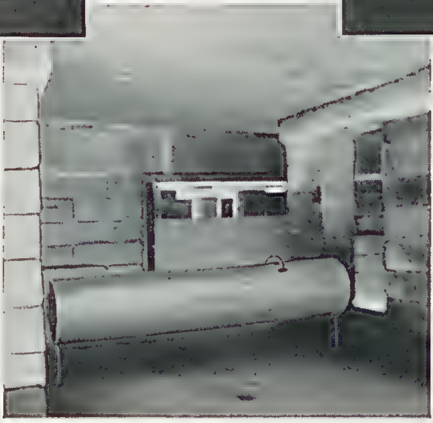
Electrical Heating of Glass Houses

M. R. FOX, ***Brisbane***
President, Queensland Orchid Society

● I am pleased, in this article, to be able to give you some information regarding the use of electricity for glass house heating. Since I first installed electrical heating I have had the opportunity of conducting experiments during the whole of last Winter, and I can now definitely say that it is a success.

At the outset, I would mention that my heated glass house measures 21 ft. x 11 ft. 6ins. and has a cubic measurement of approximately 1790 c. ft. The walls are of brick to a height of 3 ft. 6 ins., the balance of the walls and roof are of glass. Ventilation is provided for by large sliding gauze covered ventilators in the walls beneath the stages and by the usual ventilators in the apex of the roof.

Thermostat and thermometer in position in the glass house.
M. R. Fox photograph.



(Bottom). Photograph taken under one of the stages showing heating unit in position with sliding ventilator in the rear.

Thermostat and thermometer in position in the glass house.
M. R. Fox photograph.

The heaters used are ordinary metal cased strip heaters, obtainable in two sizes of 350 and 500 watts output, and the heating is controlled by means of a 15 amp. Teddington Thermostat.

In my initial experiments I had these strips protected from drip by means of inverted galvanised iron gutter. This was found unsatisfactory as the gutter, being open at the bottom, reflected the heat downwards, where, owing to the system of bottom ventilation, a great deal was wasted. I have now installed the strips in the centre of three feet lengths of 6 ins. diameter galvanised tube made of 24 gauge iron. These are left open at the ends. This has proved satisfactory, the generated heat being diffused throughout the length of the tube and escaping also at each end. The casings as fitted may be safely splashed with water while the heaters are functioning, and no undue generation of hot vapours that might be injurious to the plants above occurs. Being placed well under the stages, there is no danger of receiving a shock from the heaters unless one deliberately crawled under the benches and passed one's hand through the end of the casing on to the terminals. The casing and heaters are earthed as a precaution in case of breakdown of insulation.

The complete heating units are suspended under the concrete stages and opposite ventilators (they are really similarly placed to the pipes of a hot water system). In operation I find that there is a layer of cool air over the floor below the stages, while the warm air above is of a practically uniform temperature throughout the building.

The thermostat is fitted above the stages in a central position about level with the average position of the plants. It was adjusted to close the circuit and bring the heaters into action when the temperature fell to approximately 61 deg. Fahr., and cut the current off when it rose to approximately 63 deg. Fahr. The instrument was set on May 31 at the beginning of the season when the current was switched on, and no further attention to the outfit was required during the whole Winter period.

I worked through last Winter with heaters totalling 2850 watts output. This was sufficient to raise and maintain temperatures inside the glass house 15 deg. Fahr. above those ruling outside. The bottom ventilators were never closed unless wind blowing directly on them necessitated either a complete or partial temporary closure. The top ventilators in the roof were completely closed each night and opened as much as circumstances warranted each day.

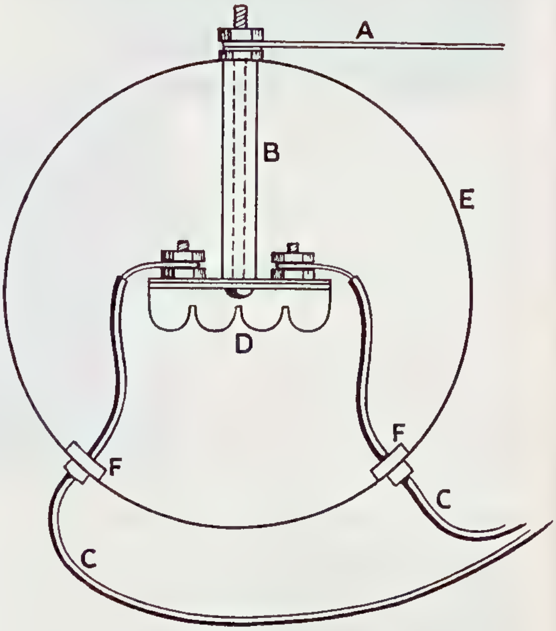
As we registered night temperature as low as 40 deg. Fahr. on one occasion last Winter, I propose increasing the heater output to 3000 watts. This will give greater control during cold snaps, but will, of course, not affect current consumption during ordinary cold weather when the heaters are working intermittently. One of the advantages of the electrical system is that it is quite a simple matter to add additional heaters at any time, it being only a few minutes' work to connect up. The outfit has only operated once or twice since October 3, as our night temperatures since that date have not fallen below 61 deg. Fahr. except on one or two occasions.

The amount of current used for the period May 31-October 3 was 2,158 units, which was supplied by the City Electric Light Co. (Brisbane) on their latest tariff for this class of heating at ½d. per unit. The cost of operation for the four Winter months was therefore £4/10/9, which, in view of the fact that no attendance whatever was required, I considered very satisfactory.

The cost of installing an electrical system is much less than that of a hot water system. The wire, thermostat and heaters, etc., complete, cost under £13, and it took two electricians one day to lay the mains and instal the outfit. These costs provided for the very best material obtainable. When one considers that a suitable English boiler that would require stoking twice a day would cost approximately £25, without piping and installation costs, which would probably amount to another £20, we realise that a satisfactory electrical plant could be installed and operated for five or six years for the initial cost of a water system.

Some of the advantages of electric heating are—

1. Its cleanliness; it is absolutely free from dirt, etc., and occupies no space.
2. The fine degree of heat control obtainable. The desired temperature with a suitable outfit can be maintained within a limit of 2 deg. F., and the temperature range can be raised or lowered at any time in a second or two by merely turning an adjusting knob on the thermostat.
3. No attendance or labour required beyond checking up on the pilot light to make sure the current is on. If desired, a bell alarm can be fitted in your house that would ring if for any reason such as fuses blowing the plant stopped functioning. I have not ex-



END VIEW OF COMPLETE HEATING UNIT

A.—Earth wire.
B.—Brass tube with 3/16in. machine screw through centre.
C.—Leads to thermostat.
D.—Front end of strip heater.
E.—Galvanised iron tube.
F.——Porcelain insulators.

Photo. Miles R. Fox

perienced any hitch to the operation of my outfit during the two years' test.

4. The practicability of diffusing more heat at any desired portion of the glass house. It is the work of only a few minutes to connect or dismantle heaters.
5. The heaters operating at comparatively low temperatures do not affect the relative humidity any more than ordinary hot water pipes. As a matter of interest, I would mention that I have found it desirable to have the air drier during the night than during the hours of sunlight. I allow the floors to remain dry all night during the cold months.

I do not claim that the system I have installed is the last word in electrical heating, but that I have found it quite satisfactory. There are other systems of heating, one of which I consider worth noting. This is by means of a special insulated soil cable used in the soil under the stages or on specially constructed stages containing soil in which the cable would be buried. The cable could be used suspended in the air. The soil on the stages could be used for raising cuttings or growing special plants, and the surplus heat radiating from the soil could be utilised for plants suspended above. This idea has possibilities, especially for commercial growers, and is really worth investigating as an adjunct to the heaters. I understand that the special cable referred to is obtainable in Brisbane. It works at comparatively low temperatures and could be thermostatically controlled to maintain any given soil temperature.

Another system of diffusing the heat would be to place a grid of ordinary fencing wire below the benches, using a low voltage. While this would eliminate the cost of the strip heaters, it would involve providing a transformer to break down the voltage. There would be no saving in initial cost, and I do not think any improvement in the diffusion of heated air.

In conclusion, to those of you who, like myself, have a comparatively small glass house to heat, and who find it necessary to eliminate all the maintenance work possible, I can confidently recommend the electrical heating, provided the power is obtainable at a reasonable rate. In my own case, I would simply have to discontinue growing plants requiring heating if electricity was not practicable, as I have no labour available for attendance on a hot water system.

I have avoided going into great detail in this article, but if any of my readers are interested and desire any special information, I shall be pleased to do my best to supply it.

[The Editor will be pleased to forward on any correspondence.]

A Convert

● An enthusiast forwarded a copy of the *Australian Orchid Review* on to a friend in England. The following extracts are from a letter written on the 26th March:—

"I must compliment you on the *Orchid Review* which you sent along to me, and which is so interesting that I am almost persuaded to have a go at growing a few Orchids myself. I have always been afraid of doing anything of the kind, because I have always looked upon it as a very rich man's hobby. However, we have some famous Orchid growers in Rawdon . . . I have a notion I will go down and see them one of these days with a view to making a start . . .

"P.S.—I am seeing Mansell & Hatcher tomorrow, so you can count me as a convert."

. . . . .

In the same mail the following letter was received, dated the 2nd April, and headed

ORCHIDS

"I have made a start and have got the plants enumerated on the attached invoice.

You would be very interested in going round the Orchid houses of Mansell & Hatcher. The seeds are germinated on Agar medium, and after germination are transplanted, or transposed, into sterilized flasks on sterilized fibre, where the little plants continue to grow until such time as they are ready for planting out round the rim of a plant pot. After about twelve months they are then ready for transplanting singly into very small pots, and in four years' time are respectable in size. The plants I have got, of course, are very much bigger and some of them are ready for flowering, but the process of orchid propagation and growing seems to be conducted on a definite scientific basis and requires a knowledge of bacteriology.

"I am sending you the invoice because I am afraid we should make a mess of trying to copy these botanical names."

. . . . .

[We are delighted to hear from our friend (Mr. John Rennie), in England, and we hope to convert a great number of other flower lovers to the cult of the Orchid. A hearty welcome.—Editor.]

Aids to Orchid Culture

P. A. GILBERT, *Lakemba, N.S.W.*

● ***Permanganate of Potash.***—Some batches of sphagnum moss are very troublesome by reason of the fact that they contain many pests injurious to Orchids. Insects, snails, slugs, small hopping crustaceans—second cousins to slaters—and slime, in various combinations, make their presence felt when the plants are surfaced with this infected moss. The animals eat the growing points of roots, gnaw young shoots through, or disfigure leaves and pseudo-bulbs generally, while the slime prevents healthy root action. I have found that sphagnum washed in a solution of permanganate of potash, one teaspoonful to two gallons of water, considerably reduces all these pests, especially the egg-stages. Soak the sphagnum in the solution for half an hour, then transfer the sphagnum to clear water for another half hour. Put it into a container in which the surplus water can drain away. It will now have a somewhat brownish appearance, but this discolouration will gradually disappear, the moss in time taking on a fresh green colour.

A Scale Scrubber.—An old tooth-brush with its bristles cut down evenly to half their lengths, makes an effective tool for scrubbing off obstinate scale insects from the older leaves and pseudobulbs of *Cymbidiums.* I use a miscible oil for this purpose.

Blotting Paper.—In the spring, premature or early growths of *Dendrobes, Cattleyas, Cypripediums,* and others have a tendency to damp off if condensation from the roof, or water from other causes, drop into them. Drying out with a sponge or camel-hair brush are the usual methods recommended in handbooks. These methods are rather slow when a number of shoots have to be attended to. A quick and perfect way is to insert triangles of white blotting paper into the young shoots, which can be left in for any length of time, to be gathered when convenient. The grower can cut the triangles, or other shapes to suit his own ideas. I find a piece about 2 x 2 x 1 inches to be a very useful size.

Oiled Hessian.—14 oz. hessian is a very useful medium for shading the roof. My Orchid houses are all covered with this material. I do not use clouding, whitewash, or other darkening materials. I prefer the direct pencils of light, which the hessian permits, to reach my plants. Soak the hessian in boiled linseed oil, then dry it on a grassy patch by spreading it out flat. It generally takes twenty-four hours to dry sufficiently for use. If oil-soaked hessian is hung on a line, it will be necessary to change the hessian about frequently owing to the oil running to the bottom edge. It is very important *not to fold up* dried pieces of hessian treated with boiled linseed oil, but use immediately, as they promptly generate heat and ultimately scorch. In a permanent position, oiled hessian will last from five years upwards, if it does not encounter hailstorms, and is supported between wire-netting. I have mine placed about three inches from the glass.

There are several advantages in using hessian. It dispenses with whitewashing or clouding the roof; and the worry of adjusting roller blinds, a big item to the business man who is absent through the week. It also allows direct sunlight to strike the plants, which is undoubtedly more favourable to photosynthesis than the diffused light of a badly painted roof. The light through hessian produces dark-green rigid leaves, while a heavily-painted roof yields flabby, yellowish leaves. Oiled hessian used alone allows from about 33 per cent., when freshly oiled, to 60 per cent. when old, of direct sunlight. This latitude of density is suitable for *Cattleyas* and *Dendrobes,* but requires modifying for many *Cypripediums,* which like more shade.

Lettuce.—Leaves of lettuce placed about the floor is an excellent inducement to snails and slugs to congregate. Examine the leaves about nine o'clock at night in winter, and later during summer. If the grower finds that his plants are being attacked, he should place pieces near the crowns of his plants and examine them at the times suggested.

Slaters.—There is only one effective way of baffling these pests, and that is to construct all benches on miniature piers, surrounded by water in cement troughs. If the benches are being supported by 3 x 3 inches hardwood, the supports can rest on small piers tapering from six inches at the base to four inches at the apex. The walls of the cement troughs should have an overall thickness of 1½ inches, be about four inches deep, and allow at least two inches of water around the piers. A trough and piers should be constructed in one operation, the piers being reinforced with 8 gauge wire into the bottom of the trough.

(To be continued.)

Notes on a Trip to Java

His Honour Judge H. F. MARKELL, *President of the Orchid Society of New South Wales*

● I feel a certain amount of trepidation in venturing to address you upon my recent trip to Java. Despite what has appeared in the newspapers, my trip was not an Orchid hunt but a pleasure trip. The flowers I saw were exceedingly beautiful, but I went to see the country and not to collect Orchids although, being an Orchid lover, I naturally brought some specimens with me. I took my family with me, and I can assure you that none of us had any desire to climb trees.

BRASSOCATTLEYA FABIA (Garden Hybrid)
This is one of a number of Brassocattleyas imported direct from England by Judge Markell two years ago. The plants should be shipped in October, and usually arrive in perfect condition even after 6 to 8 weeks' transit. Since this photograph was taken the plant has further improved in size and colouring and is again in flower. Grown by His Honor Judge H. F. Markell.

Photo, R. Olfen

I left Sydney on the "Nieuw Holland" on 18th November last. The first place we called at beyond Australia was Macassar, in the Celebes, but there was little opportunity of seeing much of that place, as we stopped for only four hours. We saw and admired the trees and plants, but there were very few flowers. We saw no Orchids growing naturally in the forest there, but I understand that about forty miles away there were many, mostly of the *Dendrobium* types. In the private gardens there *Phalaenopsis* and *Dendrobium phalaenopsis* are grown on pieces of a very hard tree fern fibre, about 10in. x 4in. x ½in. This material is of a nature that cannot become sodden. I have some at home now, and I find it very suitable for *Den. thyrsiflorum* and similar *Dendrobiums*, and, in fact, any other Orchid that does not like too much water. The great majority of Orchids that I saw under cultivation in Java were grown on that material.

We then went on to Bali and stayed there three days, but had no opportunity of seeing any Orchids growing naturally or under cultivation. The northern portion of Bali is less populous than the remainder and, given the time and the opportunity, one could get some interesting specimens there. Owing to the enormous population, 45,000,000, there is very little chance of collecting anything worth while in Java except by going right into the interior. Wherever one goes there are endless plantations and houses everywhere, most of which have their few Orchids and other flowering plants.

Our next stop was Sourabaya, and from there we went by stages to Bandoeng and finally to Nampoeng. In Bandoeng some hundreds of *Phalaenopsis amabilis* gave a wonderful display.

There are two varieties with some small differences. One is found in Java and the other in Celebes. We visited a volcano about 7,500 feet up and noticed Orchids in great profusion but mostly about the 4,000 feet level. The trees, mostly of the Fig type, were very tall and the trunks and limbs were absolutely covered with Orchids of different kinds. I got some, but I do not think they are of much account. *Erias* predominated. One place in particular was most interesting from an Orchid point of view. It was a lake situated at a fairly high elevation with an island in the centre densely clothed with trees. We took a canoe, and one of the boys poled us around the island. The trees hung over the water and were literally smothered with Orchids, but nothing of much importance. The Orchids hung right down over the water.

I did not see anywhere in Java any of the Orchids I expected to see. I saw quite a number of *Vanda suavis*, but none with stems more than three feet high. Most of the plants had many stems but very short. In some cases there were as many as forty stems.

At the Buitenzorg Gardens there is a very beautiful avenue of trees over 150 feet in height, to the trunks of which have been attached many Orchids and other flowering plants, including *Anthuriums;* also climbing *Taro* and *Grammatophyllum*, many of the latter being over sixty feet high. The trunks and limbs of some of the trees were completely covered with *Grammatophyllum*, but the flowers were all at the top, where they could not be seen. Water lillies, including the enormous *Victoriae Reginae* species, were plentiful. I went into the Orchid house, but was disappointed; possibly I expected too much. In a tropical climate like that of Java, one would expect everything to grow easily. Mr. Dakkus, the director, said to me, "We cannot grow Orchids here; it is too hot." I always believed that these Gardens were the finest in the world. As far as trees and plants are concerned, they are certainly very beautiful, but the Orchids are not what they should be at all. The Gardens are only 800 feet above sea level, so naturally the directors are not troubled by the need for artificial heating. A large majority of the Orchids we know as native to Java do not grow down at sea level, but at an elevation of from 3,000 to 4,000 feet. That is where the nurseries are, and there the Orchids flourish. There are certain types that do not grow well at the Gardens, such as the *Cypripediums*, and they do not attempt to grow them, with the exception of *Cyp. Javanicum* and *Cyp. glaucophyllum*. *Cattleyas* will not flower at all. Many other flowers that we know do not thrive there, and I never saw a rose flower of any account. *Odontoglossums* and *Miltonias* are, of course, impossible. The majority of the Orchids grown are *Dendrobiums* of various kinds that grow in New Guinea, such as *taurinum* and *undulatum*. These are bigger than we can grow them and better. There is one Orchid the Gardens is particularly anxious to get, and that is *Den. superbiens*, of which they have only one plant. That species brings from £5 to £6 in Java. *Concidiums* grow well. *Phal. amablis*, however, predominates. *Phal. Schilleriana* is not happy. With *Phalaenopsis* the best results are obtained by growing it on a damp wall, where it can exercise its preference for long roots, for which rafts and pots give no scope.

At Bandoeng I saw some very fine plants of *Renanthera Lowii*, with several spikes carrying about forty flowers each.

My experience in the tropics where I saw Orchids growing, makes me wonder whether we are doing right here. For one thing, it is no use blindly copying the conditions and methods of England. Our conditions are quite different from those in England. As far as Java is concerned, the majority of the Orchids we like do not grow at sea level, but at some considerable elevation, with the exception of the *Grammatophyllum* and New Guinea *Dendrobes*. In trying to cultivate at sea level plants which are not used to such conditions, I think we use too much heat. One sees in Java that Orchids do not like temperatures which never reach below 70 degrees, as they get no proper season of rest; and yet we are accustomed to believe that such plants will not thrive unless the winter temperature be kept at 60 degrees or higher. Personally, I intend to lower my winter temperature to 50 degrees.

Most of the Orchids not grown on the tree fern previously described are grown in pots packed with small pieces of the same material and nothing else.

My trip was, on the whole, somewhat strenuous and included 1,500 miles of motor travel, but I enjoyed every minute of it.

Information Bureau

Conducted by R. M. STEWART

● *Miltonias*

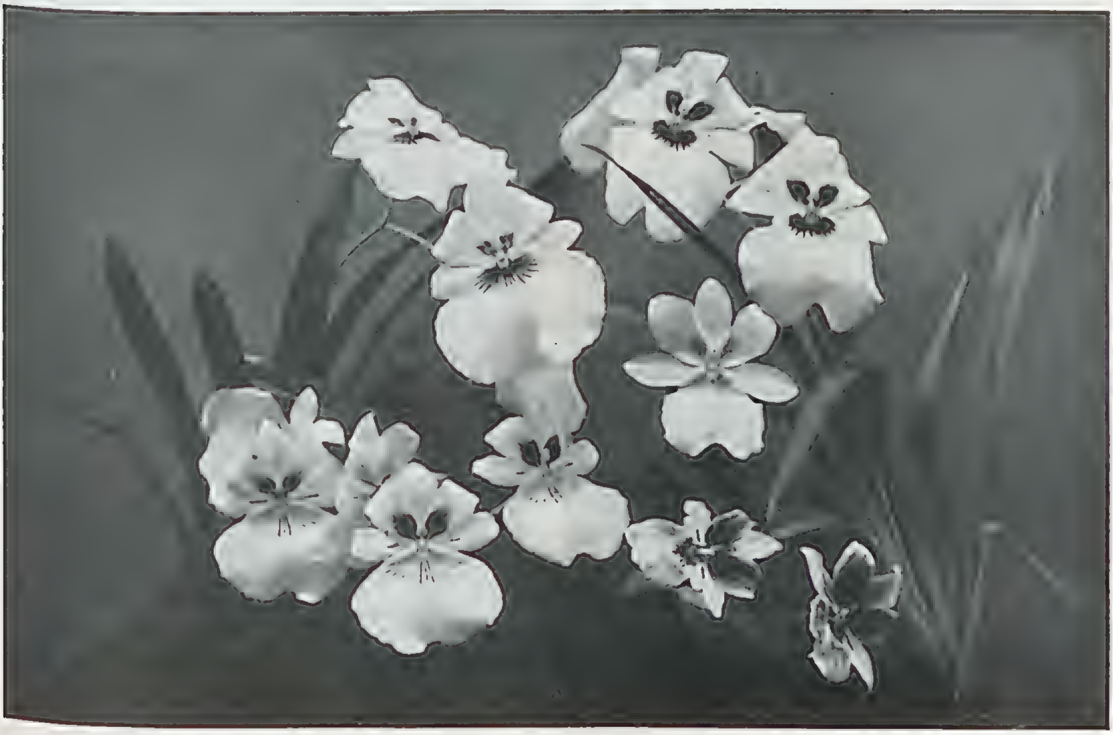
A correspondent has written to us for information concerning the culture of *Miltonias.*

Though the query caused considerable merriment to the committee—all of whom have tried unsuccessfully to cultivate these charming subjects—it was thought that, following the remarks of Mr. Cooper—a precis of which will appear in the "Review" from time to time—on the subject of *Miltonias,* that success can be achieved with them, and very many of our Society's members are again making efforts to achieve success.

In the Sydney area, *Miltonias* require cool glass house or bush house treatment—Mr. Cooper suggesting the latter as their abode during the growing period, but advocating a transfer to the shelter of the cool glass house as soon as the growth is complete. If the plants are kept under glass throughout, they must have ample air circulating round them whilst in growth.

During the warm months, plenty of water should be given. Some growers advocate the use of a draining board—an inclined plank with a ridge on the lower side, upon which the pots can be placed on their sides to allow the water to drain out of the new growths. Others, however, use the hose with ill effects. Naturally more care must be taken in this regard when the plants are deprived of the drying breezes which circulate in an open bush house. When growth is completed, lessen the water supply so that during Winter only enough is given to prevent the bulbs shrivelling.

The compost should be made up of very finely cut-up Todea fibre—or, better still, Osmunda fibre, as it does not hold water, and provides a better-drained mixture. To this should be added a fair proportion of ground crocks, charcoal and sharp sand, and a very small quantity of cut-up Sphagnum Moss. The drainage in the bottom of the pot should take up about one-third of the available space and should be so arranged as to allow immediate discharge of surplus water.



A GROUP OF MILTONIAS

The illustration shows a number of hybrid Miltonias, the beautiful species of which are found in South America. The best known species is M. vexillaria, which has figured prominently in a production of the hybrids here shown. Raised from seed, grown and flowered by W. Schmidt

Miltonias seem to appreciate cramped quarters, but when re-potting is considered necessary it should be done when the new growth is about two inches high—just before the new root action begins.

Growing of *Miltonias* in warm districts cannot be advocated, but in Victoria and Tasmania, provided warmth is given in Winter, the genus should grow to perfection. In view of Mr. Cooper's optimistic remarks, success should be achieved, too, in and around Sydney. Go to it—and good luck!

● *Vanda coerulea*

A Mosman reader has written for help in the matter of his *Vanda coerulea.*

From the wording of his letter, it seemed as though he blamed these very adaptable plants themselves (a) for making poor root growth, and (b) producing spikes which damped off.

As to (a), it should be pointed out that *Vandas* are lazy plants. If water is given in abundance, the plant will not trouble to send out roots to find it. Therefore, when root action begins, do not be too openhanded with moisture. The plant will then have to provide roots to stretch out into the moist atmosphere, or to search through the compost to obtain its requirements.

Another matter which often provides a problem is the habit of *coerulea* of making only stunted, warty roots. This may be due to oversupply of water or else to slaters, tiny snails or slugs. Try placing a succulent piece of lettuce on top of the compost, and use the torch at night. This may prove the solution. As *Vanda* roots are such delectable dainties to all chewing pests, the plants are better suspended from the roof.

Sir J. D. Hooker, famous botanist, who was one of the first to penetrate the Himalaya foothills, was greatly impressed by *Vanda coerulea*, and described them as growing on stunted, almost leafless trees, fully exposed in summer to intense sun's rays, blasting winds and copious rains, and in winter to severe frost.

Sir J. D. Hooker was tremendously enamoured with the beauty of the huge area under these lovely blue flowers.

We do not wonder at his admiration.

Try hanging the plant outside in the sun next time a flower spike forms, putting it inside again when the buds are beginning to open.

● *Cymbidium grandiflorum*

Yet another correspondent enquires the cause and cure of a black, mildew-like growth on the pseudo-bulbs of his *Cymbidium grandiflorum.* He states that all his other plants are in perfect condition, but that this particular one gets this blemish on every new growth as soon as the bulb is fully developed. It does not prevent the plant flowering, nor does it rot or soften the bulb, merely causing the leaves to collapse.

The condition is obviously some form of fungus. Isolate the plant at once and scrub the damaged spot with an old toothbrush and soapy water. Then rub lime in with the finger-tip and keep the plant dry, repeating the lime treatment from time to time. This should clear up the condition.

The writer would like to add, but not seriously, that he, personally, would leave the plant alone. The species is so notoriously hard to flower that the possibility of the fungus in question causing the correspondent's plant to flower, should not be overlooked.

Cultural Notes for May and June

● Cypripedium, or as they are more commonly called "slipper orchids," are now in their full flush of bloom.

Now that the cooler weather is setting in, care must be taken to avoid excessive watering as the plant will soon rot if moisture to excess is given when the weather is cold. The pots should be kept moist only, but they should never be allowed to dry out completely.

I have found that placing the flowering plants in a cool, dry room in the house prolongs the flowering period as the more moisture-laden atmosphere of the glass house or bush house sooner brings about the softening of the flower tissues. In the house I have been able to keep Cypripediums for 10 weeks or more. The flowers should not be handled, as they readily bruise.

I find the easiest and most satisfactory method of staking the blooms which are frequently very heavy and need support, is by inserting a piece of wire, with the top bent over in the form of a "V" so that the flower stem can lean in this "V" and be held up without the necessity of spoiling the appearance of the plants by tying with raffia and wooden supports.

In the next issue I will deal with the re-potting of Cypripediums.

Our Terrestrial Orchids

A. G. HAMILTON, F.R.H.S., ***Chatswood, Sydney, N.S.W.***

● In 1870 I was appointed to the school at Guntawang, a township of some sixteen miles north from Mudgee. Previously to this I had been in the district round Oberon, where I had collected terrestrial Orchids, but on arrival at my new home, I found different conditions and a different collection of plants.

Diuris sulphurea. R. *Brown.*
Photograph, C. A. Messmer.

The genus *Thelymitra* contains a large number of very beautiful and interesting plants; it may be distinguished from all the other genera by not having a labellum, all the segments of the perianth being equal, and similar, the points of distinction being found in the column.

The local species are only four in number: *T. longifolia, T. megacalyptra, T. nuda* and *T. carnea.*

Longifolia was collected by Dr. Woolls in the district, but personally I never found it there. *T. megacalyptra* is a fine, large-flowered species, very variable in colour—white, pink and dark lilac. On several occasions among rocky hills I found close colonies of this plant showing all the colour variations. It flowers in September and October, and seeds very freely, though I have never found the insect agent responsible for its pollination. *T. nuda* is one of the plants I have not found. It has also been collected by Dr. Woolls in this district. Bentham, however, considers it a variety of *T. longifolia. T. carnea* is a particularly interesting species. It is small, with pink flowers which open only in bright sunshine. Indeed, this is a characteristic of most of the genus, and for that reason it bears the popular name of "Sun Orchids."

The genus *Diuris* contains many species common to the Mudgee district. The children know them from the tuberous root as "yams," "snakes' heads"—from the shape of the buds, "dogs' heads," from the shape of the flower, and "two tails," from the lateral sepals projecting downwards and varying in length from one to three inches in various species. They grow mostly in the level country.

D. maculata is a common and widely distributed species, flowering in September and October. The flowers vary in pattern and colour

Diuris aurea. Sm.
Photograph, C. A. Messmer.

—being yellow to orange, spotted with pale to dark brown, the number of spots varying greatly.

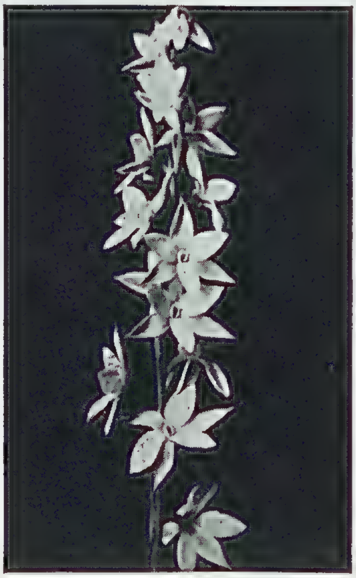
D. pedunculata, in this district is a harbinger of Spring, flowering in early August and carrying on to the beginning of December. It is of pale yellow colouring with few markings and very sweetly scented. I have on several occasions seen it visited by a small lamellicorn beetle (*Liparetus*), which gnaws the ridges of the labellum and, in doing so, becomes smeared with pollen. This insect is, no doubt, the agent of pollination. *D. abbreviata* frequents the hills, and flowers from the beginning of October till early in November. It is sometimes fertilised by a folding back of the stigma, a striking exception to the other members of the genus, which are sterile without the aid of insects. In this respect it approaches *Orthoceras strictum*. *D. sulphurea* is common on the lowlands and flowers in September and October. Its colour is warm yellow with brown blotches. *D. tricolor* (Mr. Fitzgerald named this plant from specimens which I sent to him), is common all over the district, and cannot be mistaken for any other species. The colour is yellow, white centre, with a pale purple blotch; the lateral sepals are much elongated. It flowers from August to October. *D. elongata* is the *D. punctata* of the "Flora Australiensis," and the *D. lilacina* of Baron von Mueller. A variety *D. longissima,* is recorded in the "Flora" as having been collected at Mudgee. It is the latest *Diuris* to flower, lasting from the middle of September well on into December.

Pterostylis grandiflora R. Br.
Photo. A. G. Hamilton.

There is a considerable amount of difference between the hill and the lowlands form.

Many years ago I collected a single plant of *D. dendrobioides* which differed so much from the usual type of *Diuria,* that I forwarded it to Mr. Fitzgerald, who said that it was probably a hybrid. He had another specimen from the Cunningham Plains, near Murrumburrah. The Rev. H. M. R. Rupp had a plant described to him as occurring in the Hunter Valley which appeared to be a *D. dendrobioides,* but though he searched diligently, he was unable to discover it. From the fact that it is recorded from so widely separated localities, I am inclined to think that it may not be a hybrid, but a strongly marked variety. The plant was robust, with few leaves, the flowers reddish-brown and rather large. The lateral sepals are wider than those of the other species.

D. alba was only seen by me on one occasion. I arrived at Guntawang late in October, and naturally at once surveyed my new domain. In the school playground I discovered a single plant of this *Diuris.* I watched the plant for several years, but it never flowered again. Mr. Prescott sent me a photograph of *D. alba,* and I at once recognised it as the plant I had seen. It appears to be gregarious in Victoria, forming large clumps and some of the flowers are pale lilac.



Thelymitra ixioides f Swz.
Photo. A. G. Hamilton.

D. aurea is one of the most attractive of the yellow species. The flowers are very wide, deep chrome yellow with faint brown marking; it flowers in September and October.

(*To be continued.*)

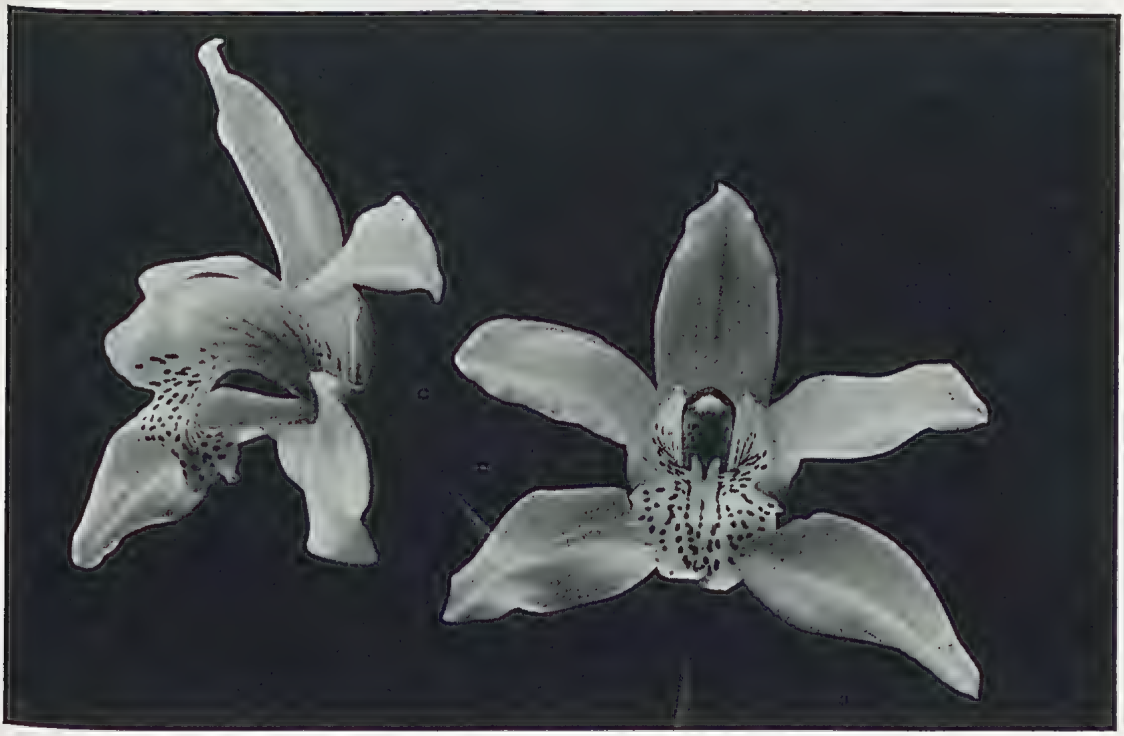
Cymbidiums and their Simple Culture

H. TAYLOR, *Belmore, N.S.W.*

● It is a well known fact that *Cymbidiums* are the most widely cultivated Orchids to-day, and at present the most popular in Australia, due to the fact that they are so hardy and become established quickly under almost any conditions. Apart from their ease of culture, the tall, graceful spike of several of the species, and the newer hybrids, carry many long-lasting flowers of great beauty. Colours pass through all shades from white to red, with yellows, greens and browns, and many are handsomely spotted or marked with colour.

The main characteristics of this genus are tersely stated by Sir J. D. Hooker as follows: "Stem very short, rarely elongate, and pseudobulbous. Scape loosely sheathed, flowers often large in sub-erect or drooping racemes. Sepals and petals sub-equal, free, erect or spreading. Lip sessile at the base of the column, and embracing it upwards, base concave, side lobes erect, mid-lobe recurred, disk with usually two pubescent ridges. Column long and not produced into a foot, anther one, or imperfectly 2-celled, pollinia 2, deeply grooved or, 4 sub-globose or pyramidal, sessile on the broad strap of gland."

Between thirty or forty different species are known, mainly from India and Burma. A few originate from China, Australia, Malaya, Java and the Philippine Islands, but these are of not much importance. A few of the most interesting species are as follow:



CYMBIDIUM MEMORIA. P. W. JANSENS (Garden hybrid)

This is another fine hybrid Cymbidium containing a large percentage of insigne. Its parents are Gottianum and insigne. Gottianum is a well known beautiful hybrid obtained between eberneum and insigne. This plant was raised from seed, flowered and photographed by W. Schmidt.

Cymbidium aloifolium: A native of Burma; has very little horticultural value. Shows very dark green and broad foliage, which rarely attains a height of more than 25 inches. The racemes about 18 inches long, and they produce a good display of bloom. Flowers 1 inch to 1½ inches across, segments very narrow, pale yellow, and sometimes with a median line of suffused purple, which is repeated in the lip. Flowers during Spring.

Cymbidium cyperifolium: Himalayas. The leaves dark, long and narrow, about 20 inches. Flowers, 3 inches to 3½ inches across; yellowish green; lip yellow with pronounced red blotch.

Cymbidium eberneum: North India. Leaves attain a height of 30 inches. Spikes very erect. Flowers 3½ inches across, creamy coloured with deeper markings on the lip. Very sweetly scented. This is a very beautiful species, and will grow quite well in an unheated glass house as well as out of doors. The blooms last a long time in perfection.

Cymbidium giganteum: North India. This species is not quite as handsome as some, but the blooms are fragrant and last particularly well, provided the plant is kept dry. Leaves about 30 inches; spikes produce 10 to 15 flowers, of about 4 inches across; greenish yellow, heavily striped with red. These grow in their natural state on the trunks of trees, especially on those which show signs of decay; occupying the hollows of the trees, partially filled with a leafy compost or decomposed vegetable matter. The flowers invariably differ in their depth of colouring. A good example of the manner in which some of the *Cymbidiums* grow may be seen in our native *Cymbidium suave*, which can be found on live, dead and fallen trees.

Cymbidium grandiflorum: Himalayas. Leaves about 20 inches long and very narrow. The flowers of this species are the largest of the genus being at least 5 inches across. Sepals and petals apple green. Lip creamy yellow, spotted with crimson red. Softly haired.

Cymbidium Huttoni: Java. A quaint and distinct-flowered species, mentioned here on account of its curious campanulate, heavily spotted flowers. It requires care in culture and will not succeed under the ordinary bush house culture in the cooler districts.

Cymbidium insigne Sanderi: Annam. Undoubtedly this is the finest of the whole genus, and has been of much assistance in hybridising. Length of foliage, 30 inches or more, and about 1½ inches broad. Spikes, 3 feet or more high and most erect. Carries up to 20 blooms of about 4 inches across. White blended to or flushed with rose, and dotted with red on the lower sepals and petals. Lip rounded; pale rose, and dotted with crimson purple.

Cymbidium Lowianum: Burma. Leaves anything from 20 inches to 36 inches long. Spikes long and 15 to 36 flowered. Flowers 4 inches to 5 inches across. Sepals and petals greenish. Lip with a striking crimson red blotch. A popular species in Australia on account of its easy culture and the longevity of the flowers.

Cymbidium Traceyanum: Burma. Stems and leaves are much the same as in *Cymbidium giganteum*, but the racemes are much longer and the flowers larger. The sepals and petals are marked with dark reddish lines, on a yellowish ground. Lip cream-yellow spotted with red; softly haired. In addition to their beauty, the flowers are strongly fragrant.

Cultural Notes.—In most cases, the culture of this genus is very easy and does not require any knowledge beyond a little common sense. The plants should be placed in a well-sheltered position, with preferably an easterly aspect, and kept away from frosts. At all times allow plenty of light, but not direct sun rays. The root action of the *Cymbidium* is thick and fleshy and generally abundant, so to ensure the proper development, ample pot room should be provided.

The compost should consist of fibrous loam, with a small amount of finely chopped Osmunda or Todea fibre, and a little Sphagnum moss. If available, peat fibre should be used in preference to the last two. In addition, add finely broken crocks or charcoal to the mixture, as such will serve to keep the compost open. Coarse sand is a good substitute if the above cannot be procured. Never use manures in the compost, whether they are new or old. Fresh manures are most harmful to the root action and the old will decay and leave large holes in the mixture, allowing too much air and diverting the drainage. If the drainage is good, the plants may be well watered during the growing season; but water more sparingly during the resting period. It is also necessary to provide ample drainage at the bottom of the tub or pot.

Potting should be done during the Spring, and all old or damaged roots should be cut off or shortened, so that the new roots may permeate the compost without hindrance.

(*Continued from page 25*)

plants threw out stronger bulbs than some of the originals, and they came into flower early in April of this year, and although the date is now August 9 and we have gone through a very hard winter, I can still show quite a few blooms on these plants. I might mention that once these plants became established with their new roots, I never attempted to water them again. They have far exceeded any of my bush house plants of this variety, and I am now about to place all my *Dendrobium phalaenopsis* out on the gum-topped box trees.

Provided beetles and slugs will leave them alone, I feel convinced that in the 1936 flowering season I will be able to show visitors a pleasing and attractive display.

Dendrobium Phalaenopsis

A Synopsis of a paper read before The Queensland Orchid Society by

V. W. A. MOLLER, *Hon. Secretary*

● *Dendrobium phalaenopsis,* which is more commonly know to Queenslanders as the "Cooktown Orchid" is, in my opinion, among the showiest of *Dendrobes.* Queenslanders should be more proud of this beautiful Orchid than they really are.

What a glorious sight, to see an array of these plants in full bloom as in the Cairns district, where so many *Dendrobium phalaenopsis* are grown.

During a recent visit to the far north, I saw an amazing display of *Dendrobium phalaenopsis* in their full glory at the Police Headquarters on the Esplanade at Cairns. There were at least 2,000 blooms of this beautiful Orchid—dazzling to the eye in the sunshine, a sight which could not help arresting anyone's attention, whether they be Orchid fanciers or not. It was easily the most remarkable display I had ever seen.

The plants were wrapped in ti-tree bark, with a filling of peat, but I have yet to be convinced that they will continue to thrive under those conditions. Of course, at present they are in a most healthy looking condition, but that is attributable to the fact that they are quite new plants, having only been taken away from their natural habitat during the last twelve months, and I am of the opinion that it is only a question of time when they will deteriorate and become starved-out looking plants.

However, time will prove whether this method of growing them is suitable. Another lot worthy of mention is a fine show at the Strand Hotel, Cairns. These plants presented a very striking appearance both last year and this; but I would say that last year they were better, as they had only been brought from the Cooktown district in recent months and were much more able to throw out a good display of blooms.

These plants at the Strand Hotel have been tied on to a living cocoanut palm trunk, but would have done much better had they been free of all the cocoanut fibre which was packed on their bases before wiring on to the trunk, or had they been more sparsely applied to the trunk of the palm. They were certainly put on for effect, but that will not last, as each individual plant will not get that light and air Orchids so much desire.

Now I come to the most wonderful of all displays of *Dendrobium phalaenopsis,* at Mr. G. Bates' home in Cairns. Mr. Bates was most kind to me in Cairns during my recent trip, as he drove me around to see various displays in and around Cairns, and then to his own home, where I saw without doubt the finest collection of *Dendrobium phalaenopsis* I have ever seen in my life. To describe them is impossible, as he had thousands of blooms, and they hung in racemes of 2 feet long with as many as 15 flowers on each, with a measurement of 3 to 3½ inches across. It is no exaggeration when I say that, for I put my tape measure across them.

Mr. Bates had his potted in tree fern trunk broken up, with charcoal and crocks, and they were doing well in the bush house, but I am going to follow carefully the results, as I am rather doubtful of that method of treating *Dendrobium phalaenopsis* with consistently good results. Mr. Bates, like myself, is convinced that the best method of all is to tie the plants on to the stem of a citrus tree without any addition of fibre or moss, and they will run wild.

We saw at Edge Hill these Orchids which were established less than twelve months ago on citrus trees, and their roots were a network over the trunks. Their bulbs were strong, clean and healthy, and the flowers excellent, which goes to show that they require a little shade overhead but plenty of fresh air about their base.

Some number of years ago I had a large quantity which I killed with kindness by potting them in peat, but although the following year I had an amazing display of blooms, the year after they were completely dead. Mr. Beard subsequently advised me to fasten them on rough hardwood battens, which I did when I procured a further lot, and they certainly did much better; but in the very hot, dry times, I am convinced that the roots suffer from too much exposure and intense dryness, and they are apt to be retarded in growth rather than advanced in strength.

Last year I tried as an experiment wiring plants on a gum-topped box tree about fifteen feet from the ground. I selected this tree, as I considered it to be the nearest approach to trees they are found on in their natural haunts. When I say that, I should say that the bark of the gum-topped box more resembles the bark to which the *Dendrobium phalaenopsis* roots adhere.

I found that, as they made new growth, the roots immediately crept into natural crevices in the bark, seeking moisture and shelter from the hot sun, and consequently gave the strength which was required by the new growths. My

Orchid Tit-Bits

CLARENCE T. GOSPER, *Lane Cove, Sydney, N.S.W.*

Laelia anceps.—One of our most prominent and successful Orchid growers of a few years ago was the late Mr. Arthur Yates, of Burwood. With his death there passed away a keen grower and lover of these plants, and also a very fine collection of all the worth-while Orchids. I remember having a long talk with him on his plants, and the subject turned to *Laelia anceps*, Like so many other growers, he had some difficulty in doing this plant to his satisfaction, till one day he read that the conditions in its native habitat treated it to a thunderstorm every day, so he altered his treatment as near as he could to accommodate the plants in regard to drowning them every day in the summer.

"Well," I said, "what about the thunder?"

"Oh," he replied, laughingly, "I rattle a sheet of galvanised iron."

The plants "suitably responded."

Odontoglossums.—A friend of mine some little time back paid me a visit. He was not an Orchid grower, but keenly interested in their culture, so we had a look over the plants, where I explained this and that, till we came to a few *Odontoglossums*. I mentioned that they were very difficult plants to succeed with in this country and hard to flower. A few weeks later he wrote me in regard to some other matter, but at the foot of his letter, asked me, "How are the Why-don't-you-blossoms?" Some day, no doubt, we shall cultivate these pretty subjects, but at present I think we should change the name as my friend suggested.

Phalaenopsis. — Mr. Christie, a grower of some twenty-five or more years ago, paid me a visit on hearing I was collecting Orchids. He saw my *Phalaenopsis*, but considered he could do them better. Our conversation turned to boilers and heating generally, and I asked him what he heated the glass house with. "Oh," he said, "I don't heat it at all; but come out to see my plants any day you like."

I wasn't long in doing so, being anxious to see these *Phalaenopsis*, as I thought, grown without heat. When he opened the glass house door, I was surprised to see such healthy and thriving plants. "How do you do it?" I said.

He simply took my hand and placed it on the brick wall. This brick wall was the end of a baker's oven adjoining his property, and in summer and winter he had all the heat he wanted. This is the easiest method I know of for heating a glass house.

PHALAENOPSIS

● The East Indies and islands in the vicinity are the happy hunting grounds of many Orchid collectors, as they abound in numberless species and types of these fascinating plants, prominent among which is the family *Phalaenopsis*. From Burma down to Java and right along to the Philippine Islands many species are met with, but I think pride of place must be given to *P. Schilleriana*, a pink flower, and *amablis*, a white. Many of the *Schillerianas* have an exquisite daphne perfume, and are the easiest of the whole section to succeed with.

Amablis is not as large a flower as *Rimestadtiana*, nor is it as easily grown, unless you supply it with more warmth in winter, but its individual flowers are of a more beautiful and rounded form, and more gracefully and compactly disposed on its raceme. All the *Phalaenopsis* are heat and humidity lovers and will not succeed without, but I have grown *Schilleriana* to produce spikes of flower with from six to fifteen blooms, in as low a temperature as 50 degrees Fahr. They also require a fair amount of shade and plenty of water when growing. A raceme of say, fifteen flowers, would in all probability, not branch like one from a larger plant, carrying fifty or more blooms, and this small spike of flowers would give me more pleasure than the larger one, on account of the individual flowers being better developed, of thicker texture and more compact. A very large raceme invariably has the appearance of being washed out and thin in texture.

P. Stuartiana is not so often met with as *Schilleriana*, but is very floriferous, throwing a wealth of flowers somewhat smaller than *Schilleriana*. Plants of *Phalaenopsis* were at one time very plentifully obtained from Manilla, but when America took over this possession things were altered somewhat and the bulk of collected plants were shipped to New York. *P. violacea* has a sweet little flower, likes a fair amount of heat, but seldom bears more than two or three blooms.

What looks nicer than a plant of *Schilleriana* with its beautifully mottled leaves and its flat purple-red roots travelling all around the wood of a basket in such a manner that it would be almost impossible to tear the plant from its support? These roots so exposed may be made to reproduce new plants by partially or wholly cutting them through. I remember a plant in the Botanic Gardens glass house which had four small plants produced in this manner. I think the roots had been accidentally bruised, and rather than die, set up an action in the reverse way.

The trials of importing *Phalaenopsis* years ago were a great drawback. On one occasion a case I received from Java contained one bucketful of cockroaches—must have gathered up every one on the old boat for a feast of *Phal.* roots and leaves, to which they did full justice. The crowns were still intact, though, and with patience I worked most of them back to a presentable appearance.

The next consignment were *Schillerianas* from Philippine Islands and were described by the consignor as "Dreadnoughts." I had only one plant left in the case, which had been broached by thieves, who had extracted all the rest. Too much of this sort of ill-luck steadies you up in regard to importing, the only redeeming feature about the business was that import charges were nil. This reminds me of a consignment of *Schilleriana* received by a resident of Potts Point, who, not knowing their requirements, had them set in a border in his garden. I never heard how they grew (or died). You might try this treatment with *Cymbidiums*, but with the chaste and lovely *Phalaenopsis*—oh, no, you don't!

The Orchids of Thursday Island

CECIL CAMBOURNE, *Five Dock, Sydney, N.S.W.*

● Thursday Island has a volcanic origin. It consists mainly of granite hills and quartz sand, to such an extent that the residents find it difficult to obtain even enough fertile ground to make a home garden. What vegetation there is consists of stunted trees and scrub, but at least half the island is almost devoid of vegetation, and plants, except Orchids, grow to a limited extent and with great difficulty amongst the granite rocks or in the sand.

Thursday Island, like the other islands of Torres Strait, has a definite dry and wet season. In the cyclonic season, from December to March, the islands receive a tremendous rainfall with very high temperatures, reaching as much as 110 deg. Fahr. The remainder of the year is much drier, with the trade winds continually blowing, and these absorb the last vestige of dampness in the porous soil. In winter the temperature at night is about 70 deg. Fahr., with continuous sunny days, during which the temperature may rise as high as 90 deg. Fahr. early in the afternoon.

Readers will now realise the peculiar conditions under which the two well-known Orchids, *D. superbiens* and *D. bigibbum*, flourish. These Orchids grow mainly on what stunted scrub there is, and receive a light filtered only very slightly by the trees, but the strongest growing plants are those found on basalt boulders, some of them growing without any shelter at all. *D. superbiens* always grows in direct sunlight.

In order to understand their culture in glass houses, it is interesting to study the cycle under which these plants grow. They make their growth in the rainy season of three months, and absorb their nourishment and water from the hot, humid atmosphere. Plants growing on the bare basalt are wet only when it is raining, and those growing on the trees receive only a very little more water at their roots. By the time the plants have completed their growth, the dry season has set in, and although the temperature is still high, reaching as much as 90 deg. in the daytime, the plants become dormant through the lack of humidity, and it is then that the plants begin their six months period of blooming. These plants multiply by aerial growths, which are broken off by the frequent cyclones.

Of the thousands of plants seen by the writer, only three which carried seed pods were noticed, and it would seem that the seeds from these would surely have had little hope of germinating under such dry conditions. A few *D. Johannis* were noticed growing around the salt water swamps, but the familiar *D. undulatum* is practically unknown, as the conditions are apparently far too dry. However, this plant is common on the north tropical coast of Australia and New Guinea.

[One hint which may be observed from this first-hand experience of the conditions under which some of our most beautiful native Orchids grow, is that intense dryness during the resting period is essential to flower production, and that perfect drainage must be maintained when water is applied.—EDITOR.]

Cymbidium Canaliculatum

RONALD M. STEWART, *Neutral Bay, N.S.W.*

● It is a fairly well known fact that in distribution epiphytic Orchids in Australia are confined to the eastern slopes of the Great Dividing Range. A notable exception is *Cymbidium canaliculatum*—a species having sweetly scented flowers, the petals and sepals of which are dark-brown outside and yellow within—about 1½ ins. in diameter when held open, and bearing up to about twenty on each raceme.

Not only does this Orchid occur to the west of the Dividing Range, but it is found in places usually considered as inhospitable to Orchid life, to say the least.

Many plants are to be seen growing without the least shade on dead box trees in the Moree district on the North-Western Plains. Here the country is almost flat and sparsely timbered. The summer shade temperature rises to as high as 117 degrees—and often remains over the century mark night and day for over a week. During winter, the thermometer falls well below freezing point on most mornings. The average rainfall is only about 21 inches, and frequently the unfortunate Orchid—fully exposed to the elements, is pelted with gigantic and jagged hailstones—which can kill poultry and cut holes in galvanised iron roofs and seriously injure any person unlucky enough to be caught in a storm without shelter. Frequently prolonged droughts have to be withstood—and by "prolonged" is meant periods sometimes of years, when practically no rain falls. Severe and frequent duststorms and no humidity worth considering are other features of this climate.

Though one can scarcely imagine a less likely spot in which to find Orchids growing, yet very many of the ring-barked trees—dead for many years— provide a home for one or more of these —surely the most hardy of Orchids.

The writer learned that the local blacks, in the days before the white man's stations provided more easily acquired rations, had been very partial to the pseudo-bulbs of *C. canaliculatum*—just as the North Coast tribes enjoyed a snack from the bulbs of *C. albuciflorum!*

When obtaining a length of hollow trunk for the purposes of a culvert over a creek bed, it was found that the roots of one comparatively small specimen extended right to the roots of the tree—some fifty feet from the plant—growing in the brown rot of which the "pipe" of these box trees is composed.

A very large plant was seen and duly collected, after much hard work with an axe and crosscut saw on an extremely hot day. It was perched on a horizontal branch sixty or seventy feet from the ground and held in place by a thin upright bough which had rotted away till only about six inches extended into the plant, which formed a perfectly round mass about four feet in diameter. No roots extended down into the hollow of the tree—the round ball being self-contained. Its surface was made up of about twenty growing "leads" and literally thousands of "back bulbs."

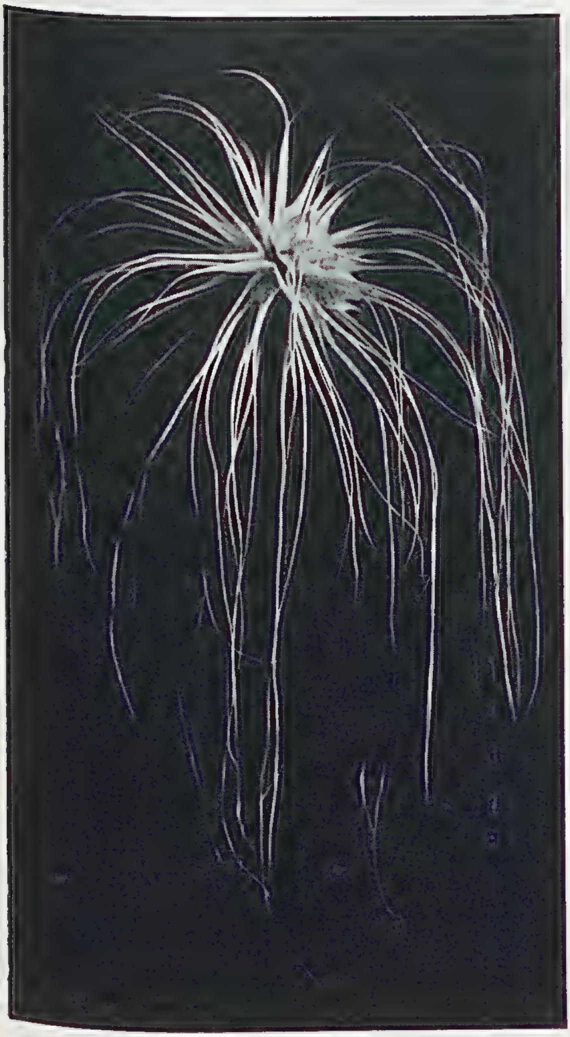
Brought to Sydney at no small expense and given a place of honour in the bush house, the plant's first effort was to produce a clutch of five healthy young lizards, probably goannas. It then promptly rotted in the unaccustomed moist surroundings. The *post mortem* disclosed two parrots' nests in burrows, complete with eggs (bad) as well as the remains of several older nests—and a fibrous mass of countless decomposed pseudo-bulbs in which the living bulbs had rooted.

This plant must have been hundreds of years old, and the writer still feels guilty of vandalism for having removed a plant which not only must have withstood many a drought, and from its internal appearance, many a fire, but also the longing, hungry glances of generations of aborigines. Still, ere this, it may have fallen from its precarious perch to become feed for the sheep.

C. canaliculatum does not appear to grow in the North-West further west than Moree. Many trees in the Coonamble, Pilliga, Come-by-Chance and Walgett districts were inspected recently, but no sign of this—or for that matter, of any other Orchid—was seen.

Why has this one member of the Orchid family chosen for its habitat a locality so uncongenial and so vastly different from those in which the plants are usually found? Is it, perhaps, a survival from the far distant days when the Western Plains were swamp lands, when conditions would have been far more suitable to the maintenance of orchidacious life? Or does the plant grow where it does merely further to illustrate the perversity of its race? Who knows?

Mr. F. A. Weinthal, of Roseville, Sydney, has a small plant of this *Cymbidium* growing well, it being hung in full sunlight and never watered otherwise than by the rain.

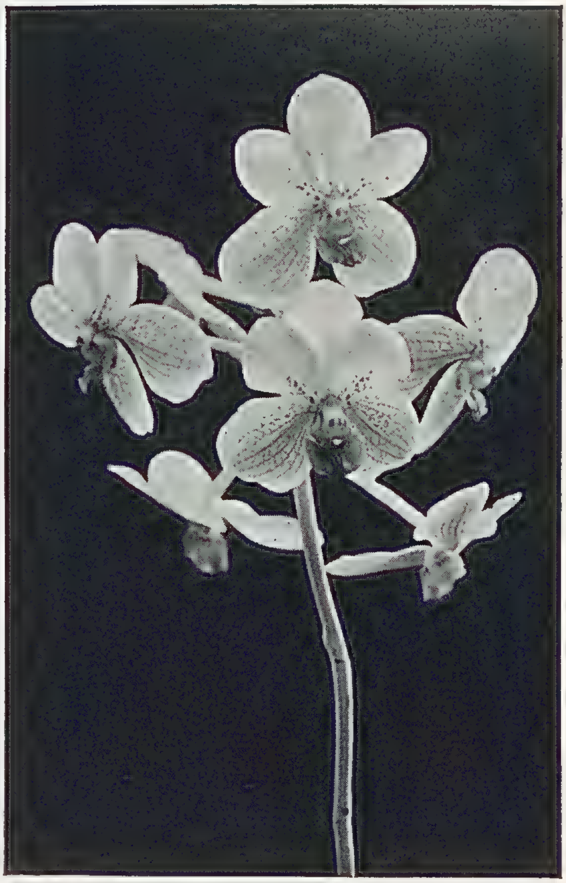


An Orchid Contrast

CIRRHOPETALUM MEDUSAE

At left.—This plant is exceptionally well named, as "Cirrhopetalum" means "petals in strands," and Medusae is an allusion to Medusa of Greek mythology. Medusa was credited with a head of serpents, and surely no plant quite resembles Medusa as much as this Cirrhopetalum. A native of Moulamein, it is easily cultivated in the warm glass house.

Photo. H. Taylor



VANDA SANDERIANA

In striking contrast with the Cirrhopetalum is this beautiful Vanda, considered the finest species in the whole genus. The flowers are fully five inches across, and are a delicate mauve colour, the lines on the lip, petals and sepals being a rich browny-red. The lip is wholly of the same colour. This plant is a native of the island Mandanao in the Philippines, and remains one of the rarer and most striking varieties which are grown in warm house. Grown by W. H. Cordwell, of Drummoyne.

Photo. H. J. R. Overall.

Cultural Notes for Cattleyas

F. A. WEINTHAL, *Roseville, N.S.W.*

● *Cattleyas, Laelias* and allied genera have, by this time of the year, almost completed their annual growth, and most of them which have formed a flowering sheath will be either showing an enlargement of the buds or will be in flower. This reference to flowering will not apply to such species as *C. Trianae, C. Schroderae, C. Mossiae and C. Mendelii,* which rest first and then bloom in the late Winter or Spring, or to some of the hybrids from these species.

Those that are showing an enlargement of the bud in the sheath should receive just a little water, in order to allow the fullest development of the flowers, but it is advisable to withhold as much water as possible in order to induce active root growth, which is so essential to Orchids' well-being.

Those that are in flower will last much longer if they are placed behind the glass of a sun verandah, and kept reasonably cool and moderately dry and away from the direct sunlight. By doing this you will prevent spotting of the flowers, and spotting has become a great problem in many glass houses where the moist temperature is very conducive to parasitical fungus growth. After flowering, the sheath should be cut off to prevent rotting, and the plant should be kept as dry as possible during the winter months, in order to prevent any leaf growth before the Spring, as *Cattleyas,* which make two growths in one year, seldom flower satisfactorily.

If a *Cattleya* has produced a sheath and is due to flower but is showing no sign of buds, the withholding of water and an exposure to sunlight outside the glasshouse, to the extent of slight shrivelling of bulbs, will often bring the desired result. Discretion should be exercised in this exposure, so as to prevent burning of the leaves—yellowing in moderation is not of any consequence.

Those, however, that have not produced any sheath, should be kept as dry as possible, in order to induce as much active root growth before the cold winter season sets in, and this can be done by keeping the pseudo-bulbs of these slightly shrivelled and root growth will then be extremely active even at this season.

In an unheated glass house, dryness in cold weather is essential. Where heat is used, moisture of atmosphere and parts surrounding the plants should be allowed in moderation, or extreme dryness with the heat may cause loss of leaves.

Cattleyas and and their allies may be well grown without heat when they are close to the sea, such as at Manly; but in higher levels heat is necessary, or, in my opinion, advisable during the colder three or four months of the year, especially at night and during sunless days. However, they will stand very cool treatment if they are kept well on the dry side and are subject to a fair amount of sun heat during the day.

Cool House Orchid Culture for May and June

T. H. JAMES, *Longueville, Sydney, N.S.W.*

● During April most of the Epiphytic Orchids, particularly those which have become established in their present surroundings, completed their season's growth or nearly so. Water should now be withheld and the plants dried off.

Plants which have been accustomed to growing in a bush house will have accommodated themselves to changes of climate, and rain does not appear to interfere with their growing and resting periods. For instance, take our native Orchids. Winter here is frequently very wet, but it is also cold, and it is the cold which enforces rest and not the absence of water.

For those plants which have not been in their present grower's possession sufficiently long to become accustomed to the Australian conditions, protection from the rain should be provided during the winter and sufficient water supplied while growth continues.

If your Orchids are grown in a glass house which can be completely closed up at night, or when necessary, do so each afternoon before the sun goes down, and so conserve the natural heat. In such a house the range of Orchids you can grow is, as stated in a previous article, very extensive. If the house cannot be completely shut down, types such as *Den. nobile, Den. densiflorum, Den. thyrsiflorum, Den. infundibulum, Vanda coerulea,* most of the *Cypripediums, Lycastes, Coelogynes,* and many others will not be affected, as they will stand a considerable amount of cold. If, however, your collection embraces

Cattleyas, Vanda Sanderiana, Den. Formosum giganteum, or any type which you know requires warmth during winter, a frame should be built with walls of brick and a glass roof, in which such types can be housed during the cold season until the warm weather again arrives. The natural warmth generated during the day can be even better conserved if at night time some heavy bagging or other non-heat conducting material be thrown over the top, and so minimise heat radiation through the glass. I adopted that plan last winter, and found the early morning temperature from 6 to 8 degrees warmer than in my open house.

Types such as *Vandas,* which do not form pseudo-bulbs should not be allowed to become too dry. Out in the bush house the rain and dew would almost be sufficient unless the winter should be very dry.

Terrestrial Orchids, of course, require more water during the winter than the Epiphytes, except the deciduous types such as *Calanthe* and *Thunia,* which will shortly complete their growth and lose their leaves. These require no water at all during the winter, and if in the bush house, turn the pots on their sides and forget them until the new growth starts in the spring. At the same time, it must be remembered that with all the Terrestrials, growth is suspended during the winter and the plants therefore require very little water, although, as with the Epiphytes, those grown outside or in the bush house will, when established, accommodate themselves to the climatic changes.

It is claimed by many *Cymbidium* growers that they should be kept fairly dry after the growth has matured, to induce flowers. My established plants, however, are grown out in the open but partially protected from the sun by trees, and the drenching they get from the rain all through the year does not affect their flowering. In fact, a *Cymbidium giganteum* which has received such treatment for years has never failed to flower on all growths, and this year many of the bulbs are throwing two flower spikes each. Probably the fact that the plants grown outside and, to a certain extent, in the bush house, are open to all the winds that blow, the consequent rapid radiation of moisture enables them to survive and flourish under treatment that would kill or at least be injurious to those grown under glass.

I believe that most plants, once they have become established in their bush house or outdoor surroundings will arrange their own life cycles, provided, of course, that the conditions are not too dissimilar to those of their natural habitat. For instance, a correspondent from North Queensland informed me that he had many *Cattleyas* grown in the open which year after year grew luxuriously but would not flower. The tropical temperature and incessant rain would not permit them to rest, and as soon as a growth matured another started. He then placed them under glass, and by being able to keep them dry induced a resting period and, subsequently, flowers.

These notes, which are written mainly for the many who have but recently started growing Orchids, apply to the conditions obtaining about Sydney, N.S.W. The farther north of Sydney one is domiciled the more liberties one may take —on account, not so much of temperature variation between summer and winter, but the shorter duration of the latter. Towards the southern border of New South Wales and beyond, the range of Orchids that may be grown in a glass house without artificial heat becomes naturally more limited.

A Letter from North Queensland Naturalists' Club

To the Hon. Editor,
Australian Orchid Review.

Dear Sir,

On behalf of my Club, I beg to offer my heartiest congratulations on the excellence of the first number of your fine journal, and to wish it every success.

I am enclosing the May number of our journal, and will be pleased to forward monthly each number as it appears, and we shall be pleased to receive your journal by way of exchange.

We are much impressed by the appeal made by the President of the Queensland Orchid Society for correct names of Orchids. May we suggest that your journal organise the preparation of a list of vernacular names for all known Australian orchids on the lines of the Victorian Census of plants?

No doubt the co-operation of the three existing Orchid Societies as well as other bodies can be secured, and we would be only too delighted to do what we can in this direction. A standard vernacular for our orchids is sadly needed. Those of Victoria have, however, been fixed by the Field Naturalists' Club of Victoria, and there is little confusion in that State.

We would be glad to have your views on this.—Yours faithfully,

J. WYER, Hon Secretary.

[The "A.O.R." welcomes any contribution.—EDITOR.]

H. E. SMART

for

CYMBIDIUM SPECIES AND
MODERN HYBRIDS

Our range of healthy and vigorous specimens of these beautiful out-door subjects is unsurpassed. Connoisseurs are invited to view our collection. Prices are competitive. We emphasize that our Stocks are mature and growing well. Fresh shipments arriving at frequent intervals from notable overseas hybridists. We also stock an assortment of Dendrobium and Cypripedium. Compare our quality, size, and prices at nursery.

Sobraon Road - Eastwood - N.S.W.
and Show Grounds, Pacific Highway,
Gordon.
Phone: Epping 1439, and JX3052

TAYLORS

ORCHID GROWERS
IMPORTERS AND EXPORTERS

5 ACACIA ST., BELMORE
'Phone: UL1045 SYDNEY

ORCHIDS

We cordially invite all Lovers of Beautiful Flowers to inspect our comprehensive stocks of well-grown and attractive plants. Our experience is always at the service of amateurs, and all postal inquiries receive our prompt and courteous attention.

At the shortest notice we can send Trained Cultivators to inspect or take charge of collections. We can give you expert advice on the erection or alteration of Glass-houses or Bush-houses.

Write for our fully illustrated Catalogue, which is free on application. Contains growing instructions as well as Price Lists.

TAYLORS

Splendid stock of

CATTLEYA, CYMBIDIUM,

CYPRIPEDIUM, ODONTOGLOSSUM

and PHALAENOPSIS hybrids.

Over 3 acres of newly-built houses

devoted to Orchids

FLANDRIA

BRUGES (Belgium)

The Ideal Nitrogenous Fertilizer

Address enquiries to—

R. Dundas Smith & Son
44 MARGARET STREET, SYDNEY

SANDERS

St. ALBANS

ORCHID GROWERS, HERTS., ENGLAND

OVER 50 YEARS' EXPERIENCE
AT YOUR SERVICE

TO SUIT ALL HOUSES **ORCHIDS** TO SUIT ALL CLIMES

Write for special offers, latest Price Lists, and "Cultivation of Orchids"

An illustrated and interesting Book free on application to Members of the Orchid Circle of New South Wales

●

SANDERS ORCHID GUIDE

A complete work on all best known species

1927 EDITION—POST FREE—21/-

ORCHIDS

Orchids of merit in great variety
Ranging from seedlings to specimens
Choice Exhibition or Commercial varieties
Hybrids from parents of distinction
Interesting Botanical Specimens
Delivered all over the world, by:

Stuart Low Co.

Nurseries: Jarvisbrook, Sussex.

Head Office: Bush Hill Park, Enfield,
Middlesex, England

Catalogues on application. Inspection of our houses invited. Offer of collections.—small or large—prepared on request.

Australian Grown Bulbs

Secure your requirements NOW

BLACK RANUNCULUS: 12 roots in 3 distinct varieties, 2/6; 24 roots, 4/9; 12 roots of each sort, 7/-. ANGEL'S TEARS DAFFODILS: White, 9d. ea. LILIUM ROSEUM: True rose coloured variety, 1/3 each. Full DOUBLE CHRYSANTHEMUM-FLOWERED ANEMONES, Mixed colours, 2/6 dozen. CHERRY PINK LADY TULIPS, rare, 9d. each. The Black MOURNING IRIS (Susiana), strong roots. Lavender FEATHER HYACINTHS, 3/- dozen. BUTTERFLY TULIPS: Mied colours, 9/- dozen. GLOBE TULIPS, yellow, white, wine, 1 each, 3/6. YELLOW CROCUS (true), 2/6 dozen. AUTUMN BELLS, for rock garden, white, 2/6 doz. New TURKESTAN TULIP MARGOLETTI, yellow splashed, red, 9d. each. 1500 other Bulbs available.

Get "THE WORLD'S BEST BULBS," 1/- posted.
The Finest Bulb Book in the Southern Hemisphere.

PHILIP MONTAGUE

Bulb Specialist

FRANKSTON, VICTORIA

W. J. HAGGETT

370 PARRAMATTA ROAD
PETERSHAM

●

Maker of fern tubs and casks to any size.

●

Petersham 3074

ORCHIDS OF SIAM

Cypr. callosum, Phal. Esmerala, Renant. coccinea, Rhync. coelestis, V. Denisoniana, and all kinds of SIAMESE ORCHIDS at MODERATE PRICES.

Catalogues free—Exchanges considered.

The Bangkrabue Nursery

24kh. Phaya Klahom's Lane
BANGKRABUE, BANGKOK, SIAM

INDIAN ORCHIDS

Fine collections of showy Orchids for £1, £2/10/-, and £5. Packing and Postage free to any address.

G. GHOSE & CO.

Exporters of Orchids, Liliums and Himalayan Flower Seeds.
TOWNEND, DARJEELING, INDIA

ORCHIDS & CALADIUMS

CYPRIPEDIUMS, 6 sorts for 24/-; 6 sorts CYMBIDIUMS, 23/-; 12 sorts Grand DENDROBES, 38/-; 12 sorts showy Orchids, 28/-. 24 sorts named CALADIUMS, 24/-. Post free. Catalogues of Orchids, Bulbs, Seeds, and Wholesale Quotation for Orchids, free. A copy of "ORCHID GROWING IN N.S.W." sent free with orchid orders.

The CHANDRA NURSERY

P.O. Rhenock, Sikkim 16 (Bengal)
INDIA

WATER LILIES

Six distinct colours—flesh, rose, white, yellow, red, salmon, for 27/6, or 5/- each posted.

J. OVERALL

Darwin Nurseries
Sulphur Creek . . . TASMANIA

ORCHIDS

Cymbidiums, Cattleyas, Dendrobiums, etc., you get good plants at good prices from

Armstrong & Brown

Tunbridge Wells, England

Write for Price Lists. All orders received shall have our very best attention in packing and selection of the plants.

You will obtain bigger and better plants by importing direct.

SIAMESE ORCHIDS

Gerides, Cypripediums, Dendrobiums, Phalaenopsis, Vandas, etc., etc., etc., at reasonable prices; also willing to exchange.

PHRA MAHA VICHAI

591, KADICHIN, BANGKOK, SIAM

CHAPMAN SON & DAVIDSON

Drummoyne Rd., Drummoyne, N.S.W.

Teak Baskets

Copper wired throughout

PRICE: 5in.	12/-	doz.
6in.	13/-	,,
7in.	14/-	,,
8in.	16/-	,,
9in.	18/-	,,
10in.	22/-	,,

ORCHID GROWERS

For supplies Todea, Fibre, Sphagnum, Moss, etc.

Write

GEO. PAYNE

WINGELLO, N.S.W.

FOR THE ELECTRIC HEATING OF GLASS HOUSES & SOIL AND THE ELECTRICAL CONTROL OF ALL TYPES OF HEATING SYSTEMS

AUSTRALIAN GENERAL ELECTRIC LIMITED

J19

ORCHIDAL

A proven German Orchid Fertilizer which produces remarkable growth and magnificent dark, almost black-green, foliage.

PRICE: 6/- per ounce.
£4 per pound. Post free.
One ounce makes approximately 30 gallons fertilizer.

Sole Agents:

W. Hermon Slade & Co., Ltd.,
Manufacturing Chemists,
ROSEBERY AVENUE,
ROSEBERY
Postal Address: BOX 1540 D.D., G.P.O., SYDNEY.

THE ORCHID REVIEW

- Founded in 1893, by the late R. A. Rolfe, of Kew. The only Journal dealing exclusively with Orchid Lore, featuring articles on the History, Cultivation, Hybridization, and all matters of interest to the Connoisseur, Amateur, and Trader.
- Exhibition Reports and Registration Records of new Hybrids accurately kept and published.
- Price, One Shilling and Sixpence, monthly, postage free. Back volumes and complete sets, bound or unbound, can be supplied from

ORCHID REVIEW LTD.
5 TAVISTOCK ST., COVENT GARDEN, LONDON, W.C.2

The Orchid Society
of New South Wales

This is the second issue of the *Australian Orchid Review*, a quarterly journal devoted to the culture of Orchids.

Should you wish to become a regular subscriber, please complete the form below, together with the annual subscription of 6/-, and the *Review* will be posted to your address free.
Please post form to:—

G. H. SLADE
Hon. Editor the "Australian Orchid Review"
Box 1540DD., G.P.O., Sydney.

Please send me, when available, the following issues of the "Australian Orchid Review."

Remittance for...*for*...
is enclosed.

Name ....

Address ....

....

....

If you are a flower lover, become a member of the Orchid Society of your own State; and join in appreciation of the climax of plants' evolution. Visitors welcomed at meetings.

Victorian Orchid Society

President:

T. C. ALSTON,
Batman House, 103 William Street,
MELBOURNE

Secretary:

F. W. CHILVERS,
5 Harcourt Street, Auburn, E.2
MELBOURNE

Queensland Orchid Society

President:

MILES R. FOX
Queensland Fruitgrowers' Association
BRISBANE

Secretary:

B. W. A. MOLLER
G.P.O. Box 269 D.
BRISBANE

Meeting Place:
MINIATURE RIFLE RANGE BUILDING,
Boundary Street,
BRISBANE

*Wholly set up and printed in Australia by Shepherd & Newman, Ltd.,
Yurong Street, Sydney.*

To automatically control temperatures in
GLASS HOUSES—SOIL—AND TROPICAL FISH PONDS

Standardise on **TEDDINGTON**

TEMPERATURE CONTROL APPARATUS

For AIR HEATING: TEDDINGTON THERMOSTATS types "AC," "YM" or "Y."

(The Teddington type "Y," is the instrument described by Miles R. Knox on page 13 of this issue)

For SOIL HEATING: TEDDINGTON THERMOSTAT type "YMI" with sensitive bulb.

For TROPICAL FISH: TEDDINGTON THERMOSTAT type "IT"
POND HEATING

Electric heating will give you ideal results in your glass house. It is simple, easy, and inexpensive to instal.
If you equip your heating system with a TEDDINGTON thermostat the regulation of temperature is easy — set the dial to the temperature you require and the instrument will see that this temperature is maintained automatically. You cannot waste electricity.

Full particulars and enquiries to Sole Australian Agents **F. C. Lovelock Limited** 235-239 CLARENCE ST. SYDNEY

INTERSTATE REPRESENTATIVES:

VICTORIA	SOUTH AUSTRALIA	WEST AUSTRALIA	QUEENSLAND
R. E. Trickey & Co. 403 Bourke St. Melbourne Tel. MU1263	E. Treliving TT. Bldg, Light Sq. Adelaide Tel. Central 4075	J. G. Pritchard Ltd. 18 William Street Perth Tel. B4710, B4711	P. H. Phillips Clock House 173 Elizabeth St., Brisbane. Tel. B5774

The Orchid Society of New South Wales

Meets every month on alternate last Tuesdays and Thursdays, in Room 507, Phillip House, Phillip Street, Sydney at 8 p.m.

The dates of the next meetings of the Society are as follows:—

MAY: TUESDAY, 26th.
JUNE: THURSDAY, 25th.
JULY: TUESDAY, 28th.
AUGUST: THURSDAY, 27th.
SEPTEMBER: TUESDAY, 29th.

A hearty invitation is extended to all interested in Orchids to attend.

Communications regarding the Society should be addressed to:

T. H. JAMES,
67 Arabella Street, Longueville.
'Phone, B6351

Printed and Published in Australia by the Orchid Society of New South Wales
G. Herman Slade, Hon. Editor.

VOL. I. NO. 3.

July-September, 1936.

8-7-40

Australian ORCHID REVIEW

C.T.G

Price 1/6

0/S

The Official Organ of
The Orchid Society of N. S. Wales.

OFFICERS
of
The Orchid Society
of New South Wales

●

President:

HIS HONOUR JUDGE H. F. MARKELL, K.C., B.A., LL.B.,
"Kooyong," Hastings Road,
WARRAWEE

Vice-Presidents:

C. A. JAEDE, M.B.,
4 Rodey Street,
MASCOT

Rev. H. M. R. RUPP, B.A.,
The Rectory,
RAYMOND TERRACE

Hon. Secretary:

T. H. JAMES,
Arabella Street,
LONGUEVILLE

Hon. Treasurer:

L. F. HAWLEY,
121 Middle Harbour Road,
LINDFIELD

Committee:

E. A. HAMILTON,
16 Hercules Street,
CHATSWOOD

S. C. JAMES,
39 Duntroon Avenue,
ROSEVILLE

Journal Sub-Committee:

C. T. GOSPER
View Street,
LANE COVE

G. H. SLADE, B.Sc.,
"Raiatea," Oyama Avenue,
MANLY

R. M. STEWART
14 Bannerman Street,
NEUTRAL BAY

AUSTRALIAN ORCHID REVIEW

Volume 1 **July-September, 1936** No. 3

Contents

- Ærides Fieldingii 10
- Aids to Orchid Culture 16
- An Orchid Hunt in Lower Burragorang Valley 13
- A Trip to Papua and Rabaul, New Guinea 32
- Cool House Culture 25
- Cultural Notes 26
  - Cattleyas 26
  - Cymbidiums 28
  - Cypripediums 27
  - Dendrobiums 29
- Cymbidium canaliculatum 11
- Cypripediums in Southern Queensland 30
- Dendrobium falcorostrum 31
- Editorial 5
- How to Hybridise 7
- Information Bureau 9
- Notes on Chlorophyll 12
- Odontoglossums 17
- Our Terrestrial Orchids 21
- Potting Dendrobiums 19
- Reports of Meetings 6
- The Annual Meeting 6
- The Library 29
- To our Contributors 8
- Vanda Watsonii 20
- Visit of Mr. E. W. Cooper 23
- Zygopetalum Mackayii 24

INDEX OF ILLUSTRATIONS

- Chiloglottis reflexa 15
- Corysanthes fimbriata 21
- Cymbidium canaliculatum (2) 11
- Cymbidium suave 13
- Cypripedium Minos Youngii 27
- Cypripedium Wellesleyanum 30
- Dendrobium Æmulum 15
- Dendrobium teretefolium 13
- Dendrobium Xanthocentrum 25
- Odontoglossum Auriga 17
- Pterostylis nutans 21
- Pterostylis obtusa 14
- Sarcochilus falcatus 4
- Vanda Burgessii 7
- Zygopetalum Mackayii 9

Subscription: 6/- per year, post free.

BISSET'S ORCHIDS

FAMOUS THROUGHOUT THE COMMONWEALTH

An Immense Collection from All Parts of the World of Bushhouse and Glasshouse Orchids, including Ærides, Calanthes, Cattleyas, Cypripediums, Cymbidiums, Dendrobiums, Miltonias, Phaius, Phalaenopsis, Vandas, etc. Species and Hybrids. All Australian Orchids stocked.

HYBRID CYMBIDIUMS, CYPRIPEDIUMS AND CATTLEYAS, L.C., B.C., etc.

Hybrid Cymbidiums, including all the very latest and best crossings.
3 and 4 years old plants—15/- to 20/-

5 years old, strong, ready-to-flower plants—25/- to 30/-.
Larger Specimens also on hand.

Hybrid Cypripediums—An endless variety of the very latest and best crosses; good, strong plants, from 7/6 and 10/- each.

Cattleyas, L.C., B.C., etc.—Ready to flower plants. 15/- to 20/- (Four and Five Bulbs).
Stronger, flowered plants.—20/- to 25/-.

POTTING MATERIALS AND SUNDRIES:

Best Quality Todea Fibre, 3/6 per bushel bag (approximately 12lbs.)

Finest Growing Sphagnum Moss, 3/6 per bushel bag (approximately 12lbs.)

Celluloid Labels. Everlasting, 3/6 per 100.

Teak Baskets (all copper fastenings). 6in., 7in., and 8in., 1/4 each, or 15/- dozen.

Orchid Pots (with cut sides and holes for hanging), 4in., 3/6 per doz., 5in. 4/6 per doz., 6in., 6/- per doz., 7in. 8/- per doz

Best Quality Osmunda Fibre, 10d. per lb.
Postage or Freight Extra on all these Sundries.

Write for Free 52 Page Illustrated Catalogue with full Cultural Directions.

SPECIAL OFFER TO BEGINNERS OF SIX (6) ASSORTED ORCHIDS (Cypripediums and Dendrobiums), nice, healthy plants, for £1 (plus postage).

Special attention given to packing on all Country and Interstate orders.

JOHN BISSETT, 48 Wareemba Street, Abbotsford, N.S.W.
General Nursery 1 Alfred Street, Leichhardt

Inspection cordially invited, day or night. 'Phone: Drummoyne 1124.

BLACK & FLORY

SLOUGH

ENGLAND

Cablegrams: "Orchids Slough"

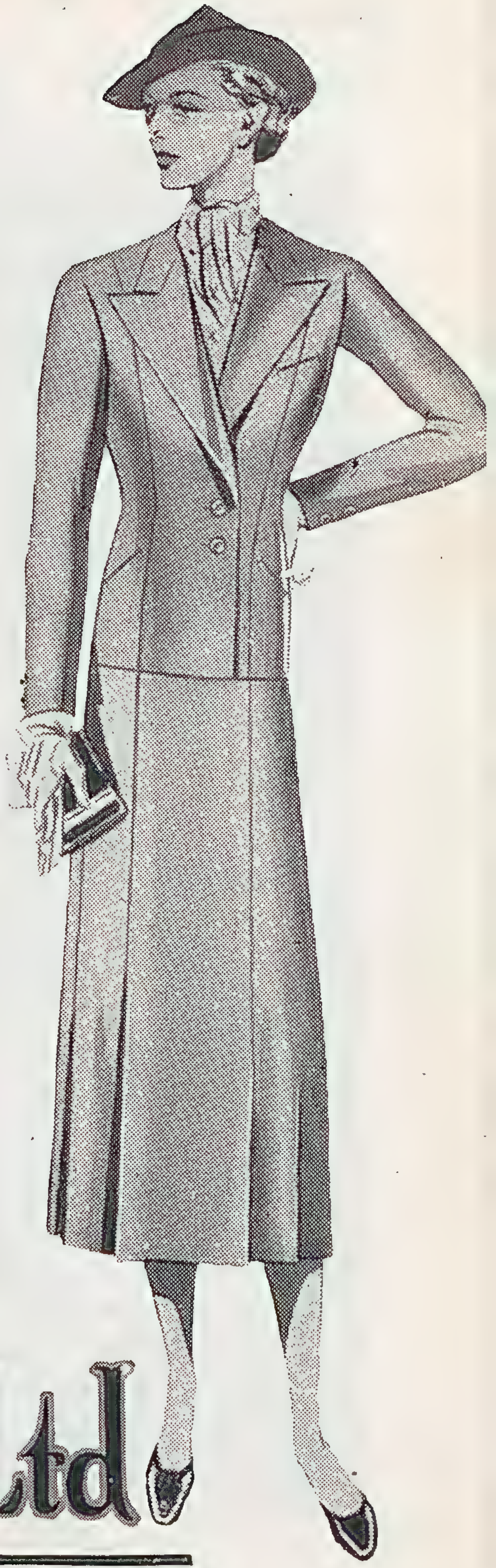
◆

Vigorous and clean plants in all sections.

Unrivalled in Hybrid Cattleya, Brassocattleya, Albino Cattleya and allied hybrid genera. Collections from £6 per dozen.

Cypripediums: The demand in recent years has exceeded the supply of this increasingly popular orchid, but we hope to make offers next spring from our large developing stock. We have distributed many of the best Cypripediums in cultivation.

Odontoglossum hybrids in fine plants and great variety at £3 per dozen.
Miltonias Odontiodas Cymbidiums



Tailoring
for **Women**
by **Men** -

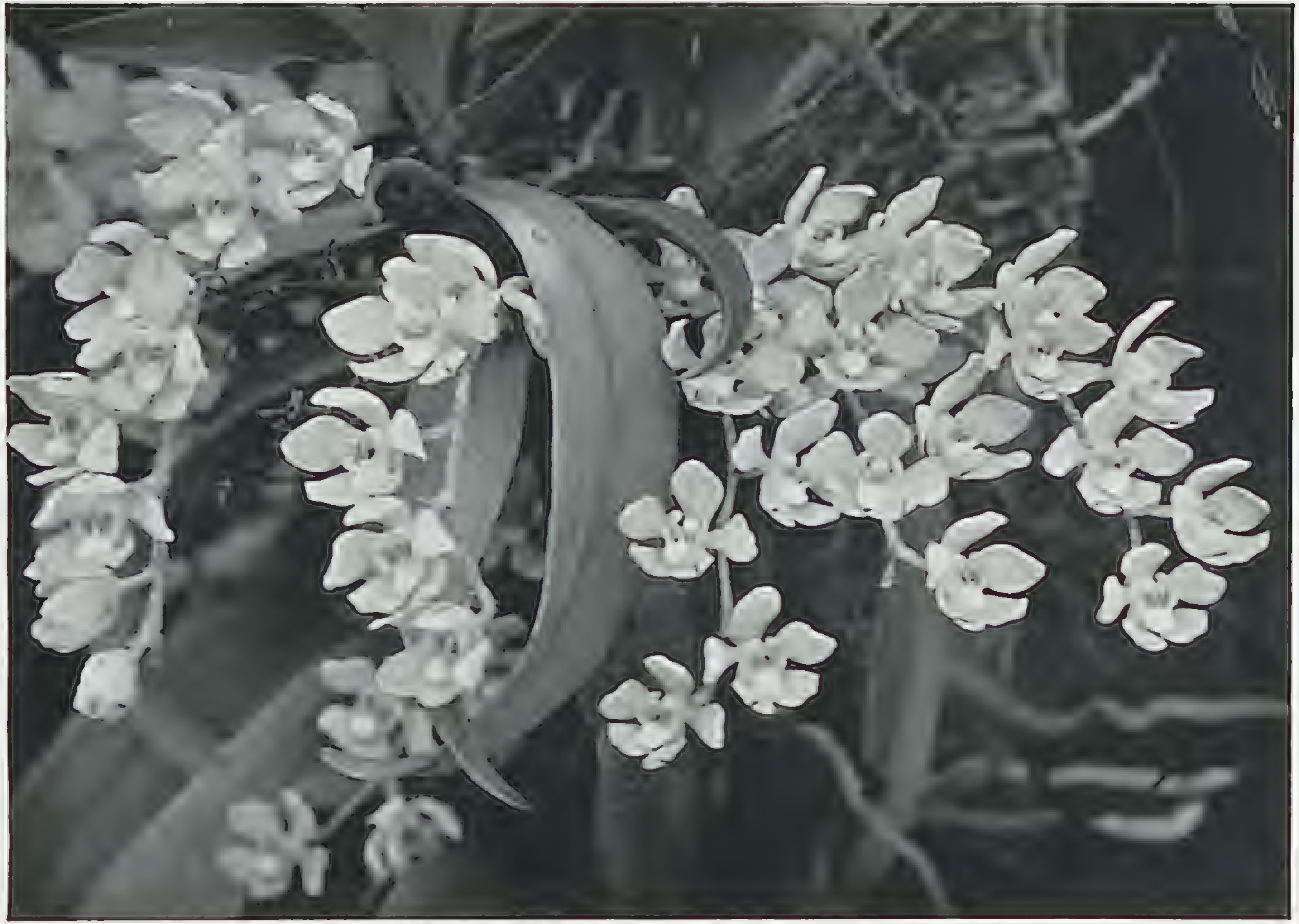
Women are demanding Suits -
Man Tailored. Because— - -
They get that Tailored look -
Mannish Lines and Perfect Fitting
Coats and Skirts - - - - -
Tailored to your Measure - -
by Experts from - - - - -

£5/5/-

Private Fitting Rooms
Latest Style Books
Daylight Showrooms

City Hatters Ltd
HIGH CLASS TAILORS
239 PITT STREET, SYDNEY.

SARCOCHILUS FALCATUS



This native orchid is amongst the choicest and most beautiful of those indigenous to New South Wales, and for this reason has been adopted by the Orchid Society of New South Wales for its letter-head design. The sepals and petals are pure, glistening white and the lip is marked within with orange, brown and purple lines and is very variable. A particularly beautiful form has a purple line down the keel of the sepals and petals on the reverse side. It is delightfully perfumed. The fine specimen pictured is grown by Mr. H. J. R. Overall, of Manly, and was photographed by him.

Australian Orchid Review

Editorial

An Experiment

● Mr. E. W. Cooper, the eminent Orchid authority who was recently in Sydney, and whose replies to the questions asked of him at the meetings of the Society are a feature of this "Review," expressed surprise that so few growers here have attempted out-door culture of Orchids to any great extent. Mr. Cooper stated as his belief that many of the varieties now treated as glass house subjects would be suitable for outdoor cultivation, and that, in general, more heat than necessary was being used by growers in this State.

True enough. Little experimental work has been done in this field, and what a vista opens before us if we find that we can gradually accommodate many of our plants to the life of "the great outdoors"—or to make them succeed in an unheated glass house where before artificial heating was used.

With winter now upon us, we all realise the anxious period it is for the Orchid grower; and each of us feels relief that the shortest day is past. The maintenance of heat, where artificial heating is installed, the careful moderation of watering and the lessening of atmospheric moisture, the control of ventilation and the suppression of insect pests which seem to thrive in the dryer conditions occurring during the cool weather, are all problems we have to contend with, and we must all wish frequently that we could grow some at least of our plants under the infinitely more natural conditions of the open air.

The cult of the Orchid is comparatively new in this State as a popular hobby, and as yet we do not seem to have cast off the shackles which bind us to following in large measure English custom as taught in the few books on the subject which are available. We have not yet found our own feet, and it will only be by experiment—by the process of trial and error—that we will be able to do so. In short, we forget or fail to consider the vast difference between our country and England in climate—and not only in climate but in sunshine. Remember, even the extreme south of England corresponds in latitude with a point over two hundred miles to the south of New Zealand, or some five hundred miles south of Tasmania, though England is fortunate in having the warm waters of the Gulf Stream washing her shores to warm things up a little.

In the Old Country, winter is a long, bleak period when such sunshine and natural warmth as are necessary for the maintenance there of exotic orchidaceous life, are almost entirely absent—when not only does the boiler need to be kept at full blast day and night for many months, but the houses and often the individual plants themselves have frequently to be covered to maintain the requisite warmth within.

Yet we follow English custom to a considerable degree—we, with our glorious winter sunshine giving natural warmth which renders unnecessary almost throughout the few winter months, the use of artificial heat in daytime and counteracting the short periods of cold we do experience which are usually confined to that hour or so just before dawn. Why, Mr. Cooper has told us that even our pampered *Cattleyas* in their natural habitat experience short spells of cold, no greater than ours in Sydney.

Only a few years ago, growers learned that not only would *Cymbidiums* grow outside, but would grow infinitely better than in a glass house; and since that discovery, many more have been made. *Thunias* grow to perfection in the open air, making less leggy growth and flowering more profusely and more regularly. Yet *Thunias* are classified in most catalogues as heat-loving plants. In our first issue appeared an article on *Epidendrum O'Brienianum*, growing almost as a garden hedge at Manly—and a mass of bloom during most of the year. *Zygopetalum Mackayi*, *Dendrobium nobile*, and several other Indian *Dendrobiums*, *Stanhopea tigrina*, *Vanda cœrulea*, *Cypripedium insigne* and most *Cypripedium* hybrids, and *Lycaste Skinneri*, are a few more which have already been proved to show beneficial results from open-air treatment, and even encouraging progress is now being made with *Odontoglossums* out of doors, where other treatment has failed.

Yet progress has been slow, and great scope for experiment is available in this field.

Readers of the "Review" want to learn of *your* experiments in this direction.

Reports of Meetings of The Orchid Society of New South Wales

● The May meeting of the Society was held at Phillip House on Tuesday, 26th. There were thirty-eight present, Dr. Jaede occupying the chair.

Mr. Stewart explained that the delay in bringing out the second issue of *The Australian Orchid Review* was due largely to the apathy of members in providing matter for publication, and urged on members the need of assistance in that respect.

Mr. J. Bisset presented to the Society a plant of *Cymbidium Eagle,* which was raffled and netted £1/12/-.

Mr. A. G. Hamilton gave an address on "The Pollination of Plants," which was illustrated by means of lantern slides.

Exhibits

Cypripedium Leeanum	Mrs. C. A. Messmer
Cypripedium Spicerianum	"
Cypripedium venustum	"
Vanda cœrulea	"
Pterostylis ophioglossa	"
Cymbidium Traceyianum	Mr. T. H. James
Cymbidium giganteum	"
Cypripedium insigne	"
Cymbidium Mastersii	Mr. W. Worth
Cymbidium Parishii	"
Cypripedium Caruso	Mr. C. Cambourn
Cypripedium Robert Duncan	"
Cypripedium Charlestoniae	Mr. R. Taylor
Cypripedium Goliath	Mr. R. McSkimming
Cypripedium Thalia var. Francis Wellesley	"
Cypripedium venustum	Mr. C. Cabban
Cypripedium insigne, var. Harefield Hall	Dr. Jaede
Cypripedium Ashburtoniae	Mr. J. Bisset
Zygopetalum Mackayi	"

New members elected:

Mr. A. M. Wallis, Double Bay.
Mrs. L. White, Double Bay.
Mr. G. Durham, Charlestown.

● The June meeting of the Society was held at Phillip House on Thursday, 25th. Dr. C. A. Jaede occupied the chair, there being thirty present.

At a recent meeting Mr. Rupp brought up the question of Orchid sanctuaries, and in that connection Dr. Jaede mentioned a discussion between himself and Mr. Bushell, the owner of what is known as "Bushell's Bush," at Mangrove Mountain, Gosford, where there are, or were, many Australian Orchids, including the albino variety of *Sarcochilus falcatus,* now somewhat rare. As the Orchids are fast disappearing from that area, it was decided, on a motion by Mr. H. J. Overall, seconded by Mr. H. S. Porter, that the Hon. Secretary request Mr. Bushell to refuse permission to anyone except an accredited Member of The Orchid Society of New South Wales to remove Orchids from the property in question, Mr. Bushell having generously signified his willingness to do so.

Mr. C. Cambourn related his experiences during an Orchid collecting expedition to North Queensland, Thursday Island and the adjacent islands.

Mr. W. Palmer, who recently visited Melbourne, described incidents of the trip and the various collections he had seen.

Four new members were elected:

Mrs. G. Blunden, Potts Point.
Mr. H. J. Solomon, Darling Point.
Miss R. Body, Trangie.
Mr. W. H. Nicholls, Melbourne.

Exhibits

Cypripedium Io grande	Mr. L. H. Newman
Cypripedium Cairo	"
Cypripedium Spicerianum	"
Cypripedium Fairrieanum	Mr. T. H. James
Cymbidium Doris	Mr. J. Bisset
Cypripedium Nitens x Leeanum	Mr. W. Palmer
Cypripedium Olivia	Mr. C. Gosper
Cymbidium Landrail	Mr. R. Stewart
Cypripedium Nitens superbum	"
Cypripedium Pixie	"
Cypripedium Minchinbury	"
Cypripedium Ilium	Mr. G. H. Slade
Cypripedium Chieftain	"

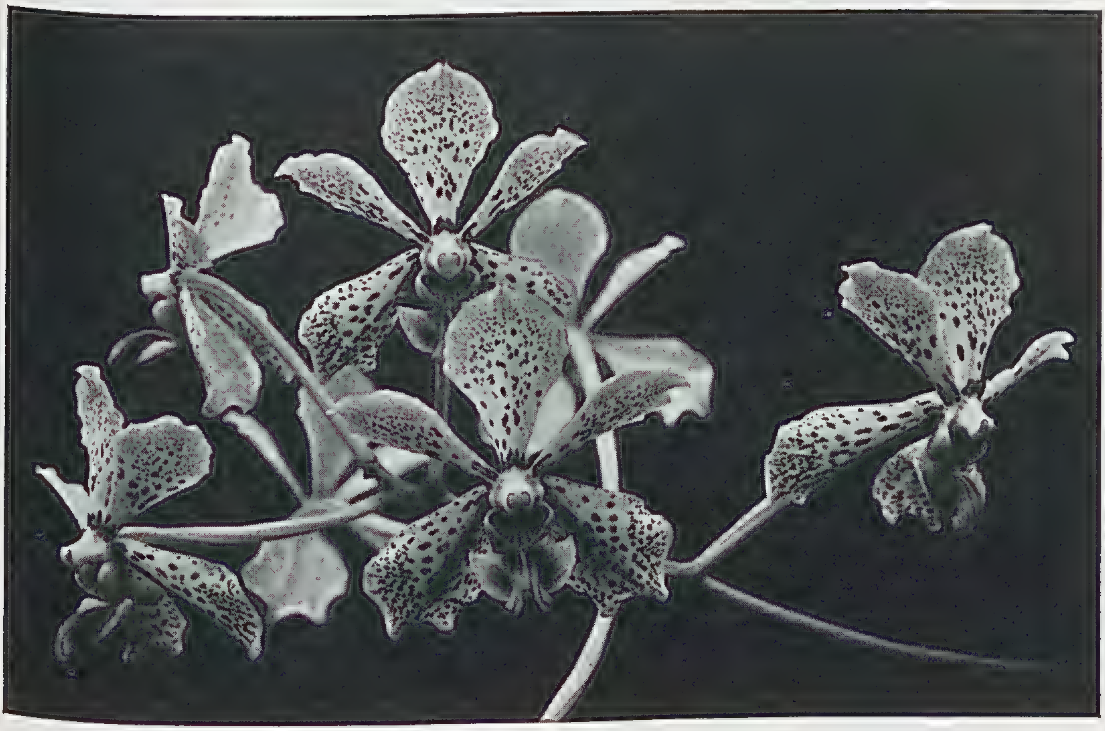
The Annual Meeting

The attention of members and those others of our readers who are interested in Orchids is called to the fact that the Second Annual Meeting of the Orchid Society of New South Wales will be held at Vere-Mathews Restaurant, 147 King Street, Sydney on

WEDNESDAY, AUGUST 26th, 1936
at 8 p.m.

A fine display of blooms, even rivalling that of last year, is anticipated. Members who will have flowers available for show are asked to communicate with the Hon. Secretary, Mr. T. H. James, at B6351, if transport of the plant is desired.

A charge of 2/- per head will be made to defray cost of supper. Visitors will be welcome.



VANDA BURGESSII

This fine hybrid has for its parents, Suavis and Sanderiana, and each parent is clearly distinguishable. The plant was grown from seed and photographed by Mr. Wilhelm Schmidt, of Turramurra, N.S.W.

How to Hybridise

L. F. HAWLEY, *Summer Hill, N.S.W.*

● The Editorial, and also some of the articles, in last quarter's issue of this *Review* referred to the hybridising of Orchids. No doubt it has occurred to many readers who are interested in Orchid culture that they would like to try their hand at hybridising, but they have no knowledge of how to go about it. This article is intended to give such readers some simple instructions so they can successfully hybridise with no danger of harming their plants.

The amateur usually approaches this subject for the first time with a feeling of diffidence, believing that it requires expert knowledge and much practice to be able successfully to hybridise. The discovery is soon made, however, that the actual process of effecting a cross is very simple indeed. The method usually adopted is described below. Technical and highly scientific terms have been avoided, as this article is intended for those enthusiasts who only recently have become interested in the growing of Orchids, and not for our experienced readers who are already fully qualified in this branch of our fascinating study.

That cross fertilization, together with proper culture and rigid selection, will result in an improved flower cannot be denied. One has only to glance through an old seed catalogue to observe the great improvement in the form, colour and size of almost every present-day flower. The rose, for instance, has been improved to a degree thought impossible a few years ago. Rose hybridists have given us many glorious new colours. The form, fragrance and floriferous qualities have been improved to a remarkable degree, and varieties introduced which have hitherto been unknown. The same results have been achieved with Orchids. Compare the present-day hybrid

Cattleya and other hybrid Orchids with those species and early crosses from which they have been derived. Then the great progress made in this horticultural science will be readily seen.

The actual cross pollination of an Orchid is quite an easy matter, and anybody following the directions given in this article will find very little difficulty in making a cross. It must be borne in mind, however, that an improvement cannot be expected, nor is the experiment of much value, if inferior subjects are used. It is only by applying intelligent cross fertilization and rigid selection that any success will be achieved. We will use for the subject of this article the crossing of a *Cattleya*, and the following is the method usually adopted.

In practice the cross is accomplished by placing the pollen from the anthers of one *Cattleya* flower upon the stigma of the flower selected to bear the seeds. In nature this is brought about chiefly by birds and insects, which appear in most cases to be specially adapted to the fertilizing of these plants. Under cultivation, the pollen must necessarily be carried mechanically from one flower to another, as it is practically an impossibility for a flower to pollinate itself. Carefully examine a *Cattleya* flower. In the centre, above the lip of the flower, a fleshy column will be found. Further examination discloses a cap at the apex of this column. If this cap is removed with a pointed match or a pair of tweezers, two pollen masses, with two grains of pollen in each, will be disclosed, one mass on either side of the column. Underneath, but adjacent to the apex of this column, will be found a stigmatic cavity which has a glutinous surface. Now in order to achieve our object in making a cross, it is necessary for some of the pollen from one parent flower to be placed on the glutinous surface of the other parent flower which is to become the seed bearer. This is easily accomplished by allowing a little of the glutinous substance contained in the column to adhere to, say, the pointed end of a safety match. The point of this match is then applied to one of the masses. Either or both of the pollen grains will then adhere to the match, and the pollen is then to be placed in the stigmatic cavity of the intended seed bearer, and gently but firmly pressed into the jelly-like substance which the cavity contains. This completes the cross. There is nothing further to do except perhaps to make a reverse cross (*i.e.*, to take the pollen from the second flower and place it on the glutinous cavity in the column of the first) and await results.

Successful pollination in the case of *Cattleyas* is discernible within twenty-four hours. The petals and sepals begin to droop, and the flower assumes a withered appearance. At the same time, the anther begins to swell. Within a fortnight the ovary, or seed vessel, below the flower becomes a deep green colour and begins to swell, and within a month a well defined seed pod will have formed. This will take from twelve to eighteen months to ripen. For best results the seed should be sown as soon as possible after the ripening of the pod.

Sometimes the pollen will not take. One reason for this is that the flower selected to become the seed bearer is not in a receptive condition at the time the pollen has been applied. A method said to be used by an enthusiast, and one who, it is reported, has remarkable success with his crosses, is designed to overcome this difficulty. Immediately before and during the act of placing the pollen on the flower, he makes a buzzing sound close to the flower, in imitation of a wasp or bee. He claims that this has the effect of making the flower receptive, the same as it would be in nature, when just about to be fertilized by some winged insect. This theory, at first sight, might appear to be stretching the imagination somewhat, but on reflection one can realise that there may be something in it after all. It is recommended, however, that readers practise this method in the privacy of their room, as the neighbours may draw more or less obvious conclusions if they hear the Orchid-grower next door going around making a noise like a bee.

Editor's Note.—Next issue will contain an article by Mr. Hawley explaining the method of crossing *Cypripediums.* This is altogether different from the method described above, but after the operation has been explained it is just as easily accomplished.

To Our Contributors

Contributions of interest to readers of this *Review* are always welcomed by the Honorary Editor. Attention is called to the fact that articles, photographs and queries intended for publication must in every case be accompanied by the name and address of the contributor, as a guarantee of good faith, and not necessarily for publication.

Information Bureau

Conducted by R. M. STEWART

Thunias

● We are asked for advice on the growing of *Thunias*. The correspondent says that his plants make long, healthy canes, but that they keep on growing and never flower. The reason is a simple one—not enough air and sunlight. When the leaves have fallen place the pots in a cool, shady place, and turn them on their sides, or adopt any other device to keep them dry. When the new growth, which comes from the base of the canes is about one inch high, repot and make the compost as rich as possible with old cow manure, leaf mould, bush scrapings, etc. An 8-inch pot will accommodate three canes—even though they may make more than one growth, which is quite common. If your glass house receives plenty of air, the pots may be suspended as close to the glass as possible, but what is probably a better idea is to grow them right out in the sun. Do not water too much until the new growths are about three inches high. By that time, roots will have developed and the plants will then take all the water you can give them, and occasional doses of liquid cow manure seem to be appreciated. With this treatment they should not fail to flower. Grown by Mr. T. H. James, of Longueville, out of doors, three stems in an 8-inch pot last year made seven growths, all of which flowered. When the flowers appear, which should be when the stems are about fifteen to eighteen inches high, place the plants—if grown outside—under cover, as they otherwise become spotted. They flower at Christmas.

Vanda Cœrulea

● We have received a most interesting letter from Mr. J. J. Genders, of Stockton, N.S.W., on this subject, following the reference to the plant in the "Information Bureau" of last issue. We publish Mr. Genders' letter hereunder:

"In this issue of *The Orchid Review* I noticed a few remarks re *Vanda cœrulea*, the best blue Orchid of all. I have grown one specimen for three years—first year, 15 blooms; second year, 12 blooms; this year, four spikes on two growths. Mine are the dark-blue variety. Re the root action: I doubt if insects play any part. All *cœruleas* grown in Newcastle have stunted root action. An experiment is being tried out to try and promote smooth root action. It is planted in charcoal only. I have left roots exposed, others I have covered, but still they are ringed. I have about fifty *Vandas*, all grown together, same potting under same conditions, yet *cœrulea* will persist in ringed roots. One very noticeable feature of *cœrulea* is that it is gradually losing its typical short leaves. The leaves are becoming longer each year, and it is gradually assuming the appearance of *suavis*.

ZYGOPETALUM MACKAYI
See Article on page 24
Photo by courtesy John Bisset.

The leaves are at least 4 inches longer than the original plant. My plants are very vigorous. They are potted in charcoal with a covering of sphagnum moss, grown three feet from the glass in a cool glass house in a redwood basket along with a lot of others. The moss is never allowed to become dry, summer or winter. I usually water once a week in winter, and when I say I have varieties of *Vandas* from *concolour* right through to *Dearii*, all grown together and all doing well. Perfectly clean glass all around in the winter—all shading is removed. Mr. Cooper passed the remark that they were doing remarkably well. I have not flowered *Luzonica* or *Dearii*, so do not know whether they will flower under cool treatment, but I will soon find out. I must certainly express my appreciation of the 'Orchid Review,' and look forward eagerly to the next issue."

We appreciate your reference to the "Review," Mr. Genders. We feel sure readers would wish to hear more about your *Vandas*.

Dendrobium Æmulum

● Mr. Duncan Sinclair, of West Wallsend, New South Wales, has forwarded us a photograph of an extraordinarily fine specimen of *Dendrobium æmulum*, with the following letter:

"Enclosed a photo of a native *Dendrobium*. I would be very thankful if you could tell me the name of it. I got it from a collector on the North Coast seven years ago. It has been growing on a piece of scrub timber all that time in my bush house and has never been watered only by rain, and every August it is like a snowstorm. The bulbs are about nine inches long and slender—four sprays of flowers from the extreme end of each bulb, and the same bulb flowers for years. *Dendrobium æmulum* growing under the same conditions has bulbs four inches long and twice as thick."

Yes, Mr. Sinclair, your splendid plant is *æmulum* — apparently that excellent variety found in the vicinity of the Nambucca River on the North Coast. Your photograph was handed round at the June meeting of the Society and the verdict was unanimous. Unfortunately the photograph is not suitable for publication, but we would appreciate a clearer and more detailed one with an appropriate background, if this can be obtained when the plant is next in flower. Many of the members who saw this photograph expressed the opinion that they had never seen a better plant of this variety in cultivation.

Cymbidium Canaliculatum

● Following the article on this plant which appeared in the last issue of "The Review," we have received the following letter from Mr. T. Nelson, of Coonamble:

" . . . I can see you realise under what hard conditions this plant managed to survive. In fact, it not only survives, but flourishes. You mentioned its mode and place of growth in box trees. I have also seen this hardy plant growing in cracks in pine trees, both living and dead.

"You mentioned that no specimens of this Orchid had been seen by you in the Pilliga district. I have not observed any plants along the main roads through the scrub country, except one—growing in a dead box tree near the Coonamble-Pilliga road.

"If you go into the timber around Pilliga, especially towards Gwabegar, you will see hundreds of wonderful specimens of a size as mentioned in your article. I brought a few small plants from Pilliga to Coonamble several years ago, and they are doing well and flower regularly."

Aerides Fieldingii

WILLIAM R. WORTH, *Willoughby, N.S.W.*

● Ærides are Vanda-like plants and are usually treated as such, nearly all catalogues, both Continental and Indian, listing them as heat loving.

They are very adaptable, however, and some at least grow splendidly in N.S.W. without artificial heat.

The plant of *Fieldingii* displayed in flower at a recent meeting of the Orchid Society was procured from a fellow member three years ago, and originally grew in a heated house. It was placed in my latticed house, which is rather overshaded, and immediately made itself at home, flowering regularly since.

Potted up in a cylindrical wooden basket with plenty of crocks and charcoal, and a topping of local fibre and a little spaghnum moss, it has not been repotted or interfered with during all that time, other than receiving a spraying from the garden hose about two or three times weekly.

The roots closely entwine the wooden strips like so many giant worms.

The numerous delightful mauve pink flowers are sweetly perfumed and hang in a pendulous raceme somewhat like an elongated bottle-brush.

Although catalogued as carrying 2-feet flower spikes, I have not seen them of that length, but they are indeed worth a place in any collection.

Cymbidium Canaliculatum, *R. Br.*

Rev. H. M. R. RUPP, *Raymond Terrace, N.S.W.*

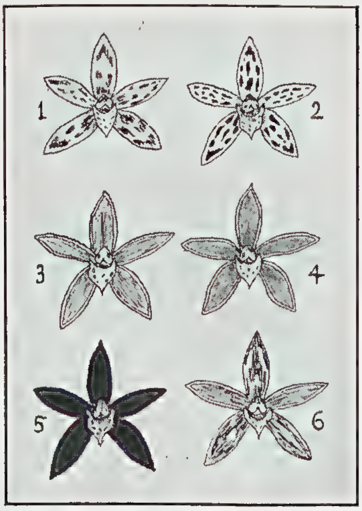
● In the April-June issue of the *Review* appeared an interesting and instructive article on this Orchid by Mr. Ronald M. Stewart. Having spent much time over several years on the investigation of this species, perhaps I may be allowed to supplement Mr. Stewart's information. For a fuller discussion, I may refer readers to my paper entitled, "A Review of the Australian Species of *Cymbidium*," in *Proc. Linn. Soc., N.S.W., lix.* 1-2, 1934. This review is still incomplete, and *C. canaliculatum* is the only species dealt with in the paper.

CYMBIDIUM CANALICULATUM R.Br.
A plant with 103 flowering racemes.
Photo, G. E. Geggie.

It has an astonishing range of habitat. The Hunter River is the most southerly locality from which I have actually handled specimens, but I have a reliable report of its occurrence on the Lachlan, near Forbes. It is very common indeed on the western slopes of New England, and its extension to the western plains is by no means limited to Moree. In 1932 I found it in abundance in the Pilliga Scrub and along the Namoi River north of Pilliga township. The western plains form is, in my opinion, the most attractive in the species, the flowers being golden yellowish-green splashed with red, and deliciously fragrant.

From the Hunter River the plant extends northward for 1,600 miles to Cape York, and thence westward at least as far as Roebuck Bay in N.W. Australia. In New South Wales it is principally, though not exclusively, an inland Orchid, but in the tropics of Queensland and the Northern Territory it occurs freely near the coast.

The plant itself is fairly constant in its habit and general appearance, whether found in the coastal rain forests or on the dry plains of the interior. It makes its home in the hollows of trees, and the roots may extend down these cavities for as much as 40 feet. As the hollows conserve moisture, this habit is doubtless the secret of the ability of *C. canaliculatum* to flourish in dry conditions unsuitable for Orchids in general. But when we come to study the flowers, we are met with a most bewildering variability in colour-schemes and colours: only



CYMBIDIUM CANALICULATUM, R.Br.

Flowers from the front, to illustrate the classification. 1, type forma inconstans; 2, type, forma aureolum; 3, var. marginatum, forma fuscum; 4, var. marginatum, forma purpurascens; 5, var. Sparkesii; 6, an intermediate between 1 and 3.

Two blocks by courtesy Linnean Society.

the morphology of the flower prohibits separation into several species. I must confess that I was extremely sceptical about F. M. Bailey's inclusion of Rendle's *C. Sparkesii* (Mareeba and other N. Queensland localities) in *C. canaliculatum;* but examination of living specimens proved that he was right—morphologically the flowers are completely identical. Particulars of the variety *Sparkesii* are given below.

Several efforts have been made to classify the Protean forms of the species, but without much success. Whether my own attempt can be generally accepted remains to be seen. Intermediates link up the various forms, and these must always constitute a difficulty. I had personally collected *C. canaliculatum* from many N.S.W. localities, and received living specimens from N. and S. Queensland; and the herbarium material in the National collections of Melbourne, Sydney and Brisbane was kindly put at my disposal for examination. Finally I made the following classification

C. canaliculatum, R. Br.

1. Type
(*a*) Forma *inconstans.*
(*b*) Forma *aureolum.*

2. Var. *marginatum,* new var.
(*a*) Forma *fuscum.*
(*b*) Forma *purpurascens*

3. Var. *Sparkesii*
(*C. Sparkesii,* Rendle)

1. (*a*) Forma *inconstans.* The common type in N.S.W. and Q., at least as far north as Broad Sound, and probably extending farther. Sepals and petals outside brown or green, inside dull to light green with heavy brown blotches or flakes. Labellum white, dotted purple.

(*b*) Forma *aureolum.* Chiefly west of the Dividing Range in Northern N.S.W. and Southern Q. Sepals and petals outside almost bronze, inside golden yellowish-green with red blotches or spots. Labellum very white with red dots. N.W. Australian specimens seem to belong to this form.

2. (*a*) Forma *fuscum.* From Cape York at least as far as Mt. Garnet, Q. Sepals and petals outside brown or greyish, inside uniformly brown with a narrow pale-green margin. Labellum greenish-white, dotted red.

(*b*) Forma *purpurascens.* Queensland: head of Brisbane R.: Proserpine. Sepals and petals outside as the last, inside uniformly magenta or cerise with a narrow pale-green margin. Labellum white, spotted.

3. Var. *Sparkesii.* Mareeba and other N.Q. areas: Northern Territory. Sepals and petals uniformly intensely deep maroon, appearing jet black except when viewed by transmitted light. Labellum pink with deep red suffusions or spots.

Notes on Chlorophyll

J. R. DUNDAS SMITH, *Mosman, N.S.W.*

● It is essential that even amateur growers of Orchids should understand something at least of the importance of the principal plant pigment, Chlorophyll.

It is upon the action of this pigment (especially in Orchids) that the health and strength of the plant largely depends.

The brief notes hereunder will help towards an understanding of the necessity of optimum temperature, light and air.

Correct balance must be maintained, as lack or insufficiency of one will negative all results.

Plant pigments may be classified as two main types—

(1) *The Vegetative Pigments,* which have a definite energy absorbing rate in the metabolic processes of the tissues which contain them.

(2) *The Ornamental Pigments.*

While the vegetative pigments are found widely distributed throughout the protoplasm, or cell sap, of the plant structure, the ornamental pigments are located chiefly in the epidermal cells, particularly of floral parts.

Plant pigments may be green, yellow, red, blue or brown, the greens (Chlorophylls) and certain of the yellows (Carotinoids) being the principal vegetative pigments of higher plants.

The importance of the Chlorophyll or the green colouring matter of plants has been understood for more than a century, its connection with Photosynthesis having been known as far back as 1819.

Chlorophyll is the most widely distributed and most important of all plant pigments and constitutes the basis of all higher plant life.

Continued on page 20

An Orchid Hunt in Lower Burragorang Valley

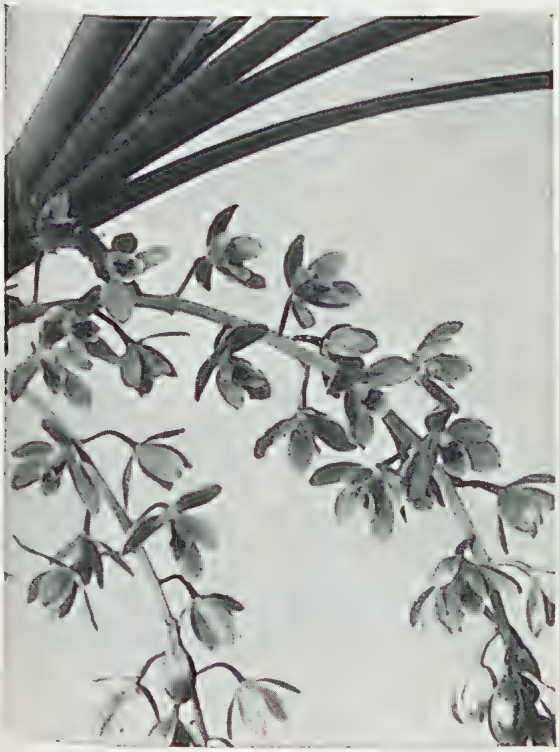
PEARL R. (Mrs. C.A.) MESSMER, *Killara, N.S.W.*

● What can surpass the thrill of a journey of investigation into unknown territory, even if it be merely an Orchid hunt not very far from home—but into a locality from which no records can be obtained?

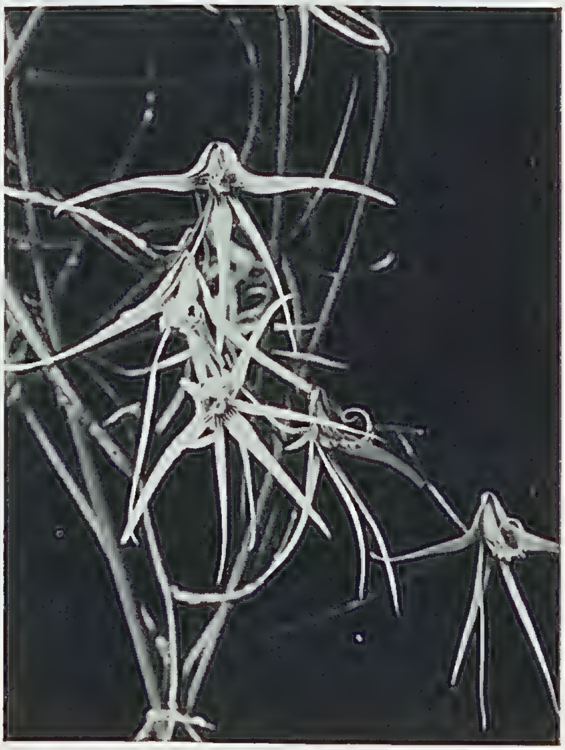
What pleasant surprises will be in store for the searcher, and what problems will arise to be solved or to remain mysteries? What among expected species will be absent, and why are they absent when every condition indicates that they should be present?

Therefore, when I set out on May 30 for a ten days' trip of exploration of Burragorang Valley, life was good!

The following records must, of necessity, be very incomplete owing to the shortness of my stay in the Valley. So many of the spring flowering genera, such as *Diuris, Caladenia* and *Thelymitra,* which cannot fail to be well represented in such varied and suitable conditions were, with rare exceptions, not yet above ground, so early in the season.



CYMBIDIUM SUAVE
Photo by Mrs. Pearl R. Messmer.



DENDROBIUM TERETEFOLIUM
Var. Fairfaxii
Photo by Mrs. Pearl R. Messmer.

Burragorang Valley is the largest of the three sunken valleys of New South Wales—the others being Kangaroo Valley and Araluen. It meanders, with its innumerable tributary valleys and gullies in winding, serpentine fashion, approximately from the foot of the King's Tableland, south of Wentworth Falls, in a south-westerly direction to a point west of and about midway between Mittagong and Picton. It is bounded on the west by the rugged and impassable three to four thousand feet ranges east of Jenolan Caves. The whole of the valley is enclosed by sheer sandstone cliffs, ending in more or less steeply inclined talus-slopes. The only outlet is through the wild and narrow gorge of the Warragamba River, flowing on its way to join the Nepean.

Within the valley are the junctions of the Nattai, the Wollondilly, and the Cox Rivers.

The steeper slopes at the foot of the cliffs are sparsely timbered, hungry and gravelly, and those more gently inclined merge into the underlying strata of clays and shales and carry heavily timbered, well grassed savannah lands. These savannah lands are sprinkled with extensive colonies of terrestrial Orchids, mainly *Pterostylis*, *Corysanthes* and *Acianthus*. Towards the bottom of the narrower gullies the hardwood timber increases in size and quality until, when the creek beds are reached, it merges with the luxuriant growth of such softwoods as *Backhousia*, *Eugenia*, *Tristania nerifolia* and *Melaleuca*. Upon the *Backhousias* were found fine specimens of *Dendrobium æmulum*—both the tall slender and the short robust forms. The latter is more commonly found on iron-bark trees in more open country, but in this locality it is apparently absent from them and is confined to the shady, moist creek beds.

PTEROSTYLIS OBTUSA
Photo by Mrs. Pearl R. Messmer.

Dendrobium teretefolium, var. *Fairfaxii*, was well developed on *Backhousia*, and a very robust, long-leaved form was also seen on the huge boulders with which the gullies are littered.

Dendrobium speciosum was robust, but only a small proportion of the pseudo-bulbs were bearing buds. Very little of the variety, *Hillii*, was seen.

Many of the moss and lichen-covered boulders carried large colonies of *Pterostylis* rosettes, quite a number in flower, others not yet identifiable.

Upon *Backhousia* were also found *Sarcochilus Hillii*, *Cleisostoma tridentatum*, *Bulbophyllum Elisae* and *B. exiguum*—the latter attaining large size upon both trees and boulders, but *B. Shepherdii* seemed to be absent. Only very scarce and poor specimens of *Sarcochilus parviflorus* were found.

Though so rich in some respects, these gullies were extraordinarily disappointing in others. For instance, although suitable host trees abounded and conditions seemed perfect for a prolific growth of both *Sarcochilus falcatus* and *S. olivaceous*, not one specimen of either was found. Maybe it was rather dark and cold for the former, but I cannot understand the absence of the latter.

Likewise, although every watercourse was thickly lined with *Casuarina* (both swamp and river oak), not one specimen of *Dendrobium teretefolium* was seen, either in Lower Burragorang or on the Cox River. Verily a valley of conundrums! Though mostly confined to the coastal gullies and river flats, this Orchid does frequently follow up the creeks of the lower Blue Mountains, and, I believe, has been taken from Woodford to Wentworth Falls. This being the case, why does it not run down from there through a conspicuously suitable valley lying between this point and Picton, west of which it has been recorded?

Dendrobium linguiforme, which is so often found upon *Casuarinas*, was also absent from them, but healthy plants of this species covered many of the boulders in the semi-shaded parts of the gullies. Perhaps the fierce, mid-summer heat, for which Burragorang is noted, would make it impossible for young seedlings of these *epiphytes* to gain a footing along the open river flats, although the profuse growth of lichen upon these *Casuarinas* would suggest a plentiful supply of moisture.

One of the chief objects of my visit was to try and locate the somewhat rare *Dendrobium cucumerinum*, which was the only record I could obtain from the valley before setting out. I'm afraid it must have been a record of a single specimen! Search diligently as I might, day after day, mile after mile, on all species of *Casuarina* and likely-looking rocks, I was unsuccessful.

The broad, fertile river flats were, and I should imagine always will be almost devoid of Orchid life, owing to extensive cultivation and to the vast hordes of wandering pigs which root up everything succulent in their tracks.

CHILOGLOTTIS REFLEXA
Photo by Mrs. Pearl R. Messmer.

Another rich hunting ground was the long, steeply sloping razor-backed colls separating the gullies. Though in appearance barren, there was a certain amount of soakage along them and terrestrials abounded. Dense colonies of *Pterostylis* were found in very exposed places. The moisture required by these Orchids is no doubt fed to these barren looking slopes by the heavy, saturating fogs which envelop the valley early in the evening and do not lift again until very late in the morning.

The localities where thirty-six species were observed, together with the state of development which the plants had reached, may be of interest to readers.

Acianthus exsertus.—Plentiful on the thinly timbered slopes; just finished flowering. *A. fornicatus.*—Some well advanced; others still in young bud; found both on the slopes and in the grassy, sheltered valleys. *A. caudatus.*—In bud on the slopes. *A. reniformis.*—Both on the slopes and in patches of clay in the gullies; not yet in bud.

Chiloglottis reflexa.—Just over, and *C. formicifera* seemed never to be absent from any locality. The latter was in very early stages of bud. Other *Chiloglottis* with straight leaf margins, and still in bud, may be the rare *C. trapeziformis,* and should be looked for by spring visitors.

Corysanthes bicalcarata—both the dark purple and grey forms—also *C. pruinosa* and *C. fimbriata* were plentiful in the moist, grassy gullies.

Eriochilus autumnalis—with very large basal leaf—on the exposed slopes.

DENDROBIUM ÆMULUM
Photo by Mrs. Pearl R. Messmer.

Glossodia major and *G minor,* on the rocky slopes and in open forest—in bud.

Pterostylis acuminata.—In huge colonies—over. *P. obtusa.*—Also over. *P. reflexa.*—In flower. *P. concinna.*—In flower. *P. curtain.*—In bud. *P. nutans.*—In bud. These were all found on the slopes and in open forest. It is strange that *P. nutans* should be so immature on the sunny slopes when it was already in full bloom in the deeply shaded gullies. Other *Pterostylis* in these gullies were *grandiflora, longifolia* and *reflexa*—all in flower, whilst *pedunculata* (a spring flowering species) and *curta* were still in bud.

Caladenia alba was rare and still in small bud, and only seen on mossy rocks in deep shade.

Continued on page 22

Aids to Orchid Culture

P. A. GILBERT, *Lakemba, N.S.W.*

In the last two issues of the "Review" Mr. Gilbert has given us useful hints on various matters pertaining to orchid culture. He here continues his advice in the matter of combating slaters, by erecting slater-proof benches of concrete.

Slaters—continued.

● A good mixture of aggregates is two parts basaltic screening, two of sand, and one of cement. Mix thoroughly. Of course, boxes or moulds have to be made to receive the concrete, depending on the intentions of the constructor. All my benches are supported in troughs, and I do not think that I have killed over the last twelve months more than half a dozen slaters which have crawled up the walls to the rafters and fallen. Constructing troughs may mean a lot of initial expense and time in construction, but the absence of snails, slugs and slaters (three S's—the Orchid grower's nightmare) soon redeem these disadvantages with uninterrupted growths in plants.

Methods of Growing "Botanical" Epiphytes and Terrestrials

● The satisfactory growing of Orchids of botanical interest is a pleasure to be measured by the intrinsic value of the knowledge gained, rather than by their horticultural insignificance. Moreover, some of our smaller species pale into unimportance the floral beauty of a *Cattleya,* when structural details are compared. The terrestrial *Caleana major,* for instance, offers a wealth of speculation as to the origin of its intricate reproductive mechanism, which impels one to pass over the coloured magnificence of the more generalised forms. Fully to appreciate the importance of the structural peculiarities of some of our native Orchids, it is necessary to turn to Darwin's book on the Fertilisation of Orchids. It is a great convenience to have botanical species at one's hand in flower when required, but many of our indigenous species are difficult to grow when treated along the same lines as we treat many of the exotic species. In their wild state many of the small epiphytes grow with equal vigour on trees or rocks, in rather exposed situations, in consequence of which, they do not respond readily to a sudden change to the conditions of artificial culture. In Nature, where Orchids are found attached to trees and rocks, there seems to be an apparent lack of moisture, but in reality considerable condensation takes place overnight about the plants, so that these small epiphytes exist mainly by nights of dampness and days of sunlight and air, except, of course, during rainy seasons. Working on the theory that small epiphytes thrive by insensible moisture about their crowns throughout the night, I adopted the plan of mounting them on inverted flower-pot saucers, which I placed on bottles of water, using pickle or other large-necked bottles for the purpose. The saucers being porous, absorb the moisture as it condenses, thus necessitating the occasional replenishment of the bottles. The resultant root growth is sometimes more active than that observed in a state of nature. *Dendrobium linguiforme, D. aemulum, D. Schneiderae,* and many others thrive when mounted on inverted saucers, after having lingered under other methods of culture. When mounting, dust a little coarse sand and powdered cow manure over the bottom of the inverted saucer, then place a pad of fresh sphagnum moss over the soil. Place the plant on the sphagnum, and fasten it down with copper wire by turning the ends of the wire up, and into the inverted saucer.

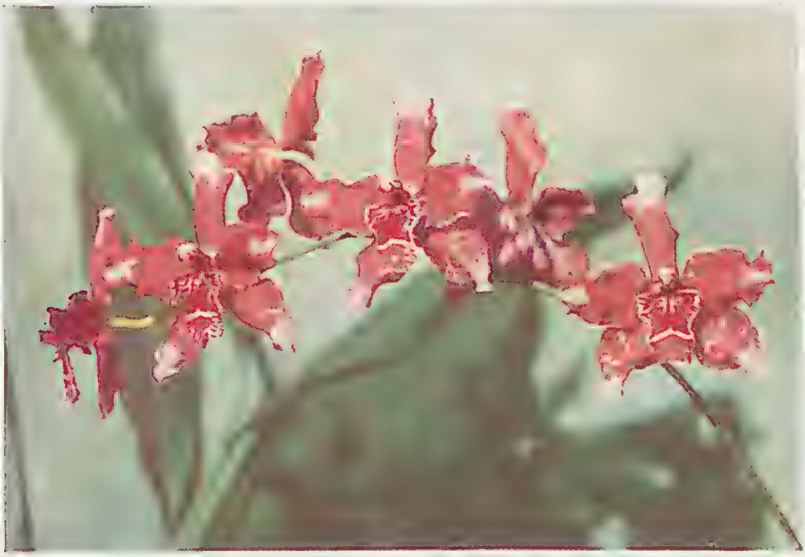
Terrestrials are a great source of interest, as some of them are among the most wonderful of Orchids in regard to their reproductive contrivances. I have been cultivating terrestrials for many years, and, by means of trial and error, have developed a system which is quite satisfactory. I never collect terrestrials for cultivation until they have finished flowering. I then gather them with a quantity of the earth in which they grow. The pot is thoroughly drained before they are planted, as imperfect drainage is responsible for many failures. After potting, I let them die down without watering. When the leaves have turned yellow, or have decayed, I ram the earth tightly into the pot to make it as firm as it was when the plants were growing wild. Firm soil does not hold as much moisture as loose soil. The pseudo-bulbs are then rested until they make new seasonable growths, when they are watered to keep the soil damp, but not saturated, otherwise damping off takes place. Use rain water when available, but do not spray overhead with tap water. Place the pots out in the open during showery weather, either while resting or growing. With the treatment outlined, Greenhoods (*Pterostylis*) are easy to grow, and a well-filled pot of nodding *nutans* is an object that one can gaze upon with delight, while Doubletails (*Diuris*) make equally interesting, but more colourful, companions.

Odontoglossums

His Honor, Judge H. F. MARKELL, *Warrawee, N.S.W.*
President of the Orchid Society of New South Wales

● Between two and three years ago I acquired a couple of dozen hybrid *Odontoglossums* and *Odontiodas*. These had recently been despatched from England, and arrived in quite good condition; the leaves were intact and the bulbs plump. I had had no experience with these plants, and after reading what I could on the subject, I tried them first of all in the heated glass house. In this for two or three months they lasted fairly well and flowered. The flowers were not very big, but still they seemed to be keeping in fairly good condition. After the first few months they started to go down hill, having evidently used up the greater part of the energy still contained in the bulbs and having sent out no roots. They also were severely attacked by thrip.

Seeing that they apparently would not succeed under these conditions, I then transferred them into my cool glass house, which is kept open all the time and therefore is always full of fresh air at the outside temperature. However, they continued to go down hill until at about the expiration of twelve months after I had received them, they were in a very sorry state. The bulbs were badly shrivelled, a few leaves were left, there were no roots worth talking about, and any new growths that appeared damped off. As the foliage was most unsightly through thrip, they were really an eyesore, and I seriously considered consigning them to the furnace and writing off the investment as a loss. I was told by everyone that plants of this description could not be grown in New South Wales.



ODONTOGLOSSUM AURIGA

This choice spray is from one of those out-door grown plants mentioned in Judge Markell's article. With this as evidence, there can be little doubt that success can be achieved with them under the conditions outlined.
Photo by R. Olfen.

Still, being averse to destroying any plant on principle, I decided to put them out into the bush house, really hoping that might hasten their end, and at any rate remove them from my sight. They were placed along a shelf in the shadiest portion of the bush house, and were sheltered completely by ferns and staghorns. No difference was made in the treatment of the other plants in the bush house, which was kept well hosed. I imagined that under these conditions they would soon rot and that would be the end of them. After a few weeks, happening to look them over, I found to my surprise that they showed signs of improvement, and to make a long story short, after six months in the bush house, which entailed being there during the Winter season, they looked nearly as well as when I received them, barring, of course, the marred foliage. Thus encouraged, I decided to pick out what seemed to me to be a more congenial spot, and transferred them to where they still are under a large Deodar tree, alongside my fish pond.

The tree has a spread of some twenty feet. Its foliage is dense and no direct sunlight ever reaches the plants. During the Summer months they are kept well hosed with the other various staghorns and Orchids under the tree. The result has been that these plants are now, and have been for some time past, growing vigorously and exhibiting every sign of good health. The new growths are large, in fact, larger apparently than they were in England. They are flowering well, and so far as I can make out, the flowers are full size.

The material in which they are potted is a mixture similar to that used for *Cattleyas*—one-third moss and two-thirds osmunda fibre, mixed up with pieces of broken crock, etc. As the result of this experience, I am thoroughly satisfied that these plants can be grown in New South Wales under conditions similar to those suitable for *Cymbidiums*, barring, perhaps, direct sunlight. My plants are progressing so well now that when the period of new growth arrives, I intend to divide some of the bulbs, there being in some cases from 8 to 10 bulbs in the one pot.

I imagine that if the plants had not suffered so severely during the first twelve or eighteen months that I had them, they would be in even better condition than they are now. On two or three occasions I have brought specimens into the meetings of our Society in flower, for the purpose of showing members that this genus can be successfully grown under these conditions. I do not know whether the particular tree under which they are growing has anything to do with it, but I have noticed that there is a considerable layer of the pine-like needles falling from the tree on the top of the potting material, and it has occurred to me that possibly they may be of assistance. I also may add that from time to time I have given them small doses of dilute Orchidal, and with these plants as with all other orchidaceous ones, I have found marked response after such applications. I put forward these notes in a hope that they may prove of assistance to such of our members as care to experiment along these lines. It would seem from the catalogue and articles in English Orchid publications that the *Odontoglossum* and its various hybrids are among the most popular, if not the most popular kinds of plants which are favoured by Orchid lovers at the present time.

It would seem that in England they grow very readily and flower profusely. They are very beautiful, and I am confident that with a little experimenting these plants can be grown just as successfully here as in England, and with considerably less trouble, because they can be grown outside.

It would seem that, like *Cymbidiums*, they cannot be successfully grown under glass. In an article that came from the Melbourne Society it is stated that *Odontoglossums* and plants of that type very much appreciate dew at night, and possibly this may have something to do with their successful culture outdoors.

All plants of this description appear to be susceptible to attack from thrip. This, in all probability is because in glass house culture they do not thrive, and like all sickly plants are then subject to attack from insects, but when outside, being in more vigorous condition, they are able to resist thrip and, in addition to that, as they appreciate being kept thoroughly moist, the leaves and shoots all kept wet, the latter often being full of water, and such a condition of things renders it impossible for thrip to continue their attack.

With this article you will see a photograph of the latest *Odontoglossum* in my collection to flower. Its name is O. *Auriga*, being a hybrid, but the name conveys little to me, as it is impossible to keep track of the thousands of hybrids which are continually brought forward.

I have some *Odontiodas*, and so far as I can see their performance under like conditions is exactly the same. I have not at yet tried *Odontonias*, which are a cross between *Odontoglossums* and *Miltonias*. I have heard that these are of even more easy culture than *Odontoglossums* as *Miltonias* will stand more heat than the latter.

So far as *Miltonias* are concerned, as I am on the subject, my experience has been lamentable. I procured some of these plants at the same time as the *Odontoglossums*, and tried them under all the conditions mentioned above, with no success whatever. Out of three dozen, I have only one surviving under the Deodar tree. It apparently retains some small spark of life, but I fear that before very long it will pass away. I do not despair altogether of *Miltonias*, because I think that my plants were so debilitated by glass house treatment and so weakened by attacks from insects that they got into a state when recovery was impossible under any conditions, and it may be as some of my friends suggest that if these plants are kept outside in a sheltered condition during at any rate ten months of the year, excepting possibly July and August, they may be successfully cultivated.

A matter that I have noticed in connection with plants generally which may be of assistance on this point, is that undoubtedly some genera will grow much better on the seaboard than they will at an elevation of seven hundred feet, as obtains at Warrawee.

My friend, Mr. Hermon Slade, lives at Manly, and his glass house is practically on the water's edge, and as we often compare notes, it has been borne in on me that certain types of plants do very much better with him than they do with me, and *vice versa,* and I almost invariably find that if a plant succeeds and grows well with me, it does not grow as well with Mr. Slade. For instance, *Calanthes*, *Phaius* and all other types of plants with plicate leaves appear to me to grow very much better beside the sea. Certain types of *Oncidiums,* being those with the softer, *Cymbidium*-like leaves, do better with him, whereas the ones with coriacious leaves appear to thrive at a higher elevation, and so far as I can see, *Miltonias* appear to grow better at lower levels.

These last few remarks of mine are somewhat in the nature of a digression from my theme, but possibly they may prove of assistance to some of our readers who are experiencing difficulties in growing certain species.

I would suggest therefore (coming back to *Odontoglossums*) that members getting these plants, place them in some sheltered position outside, where they get little or no direct sunlight. Do not disturb them in their pots, at any rate until the original pots in which they grow are too small to contain them, which will not be for some considerable time. I would repot when the new growths are about 1 inch high, and then I would place them in a container which will allow for not more than two years' growth.

See that the drainage is ample, but it must be borne in mind that they are moisture-loving plants, and while not approving of sodden conditions, they should never be allowed to become completely dry.

I trust that these observations of mine may prove of some little assistance to others who wish to be able to grow these beautiful plants, and they are put forward for that purpose. I still must remind readers, however, of what I always say in connection with these matters, that I can only give to you what is my experience. It may be that in different places and under different conditions the same results may not be attained by others.

Potting Dendrobiums

M. GALL, *of the Queensland Orchid Society*

● When potting a *Dendrobe,* the first thing to be considered is cleanliness. The plant to be potted should be thoroughly cleaned if necessary with some scale killing preparation and all dead pseudo bulbs removed. The roots of the plant should then be examined, and all roots that are dead or broken should be removed, as these would cause rot if allowed to remain on the plant and covered with compost.

The pot crocks, charcoal and peat should be next examined. The pot, if necessary, should be well scrubbed and the crocks also. The charcoal should be hard and not of a soft and crumbly nature and should be in fairly big pieces. Elkhorn peat is the best peat to use, as it is more fibrous than that of the staghorn. It should not include any of the "scale" which holds too much water, and should be teased and washed before using. If a new pot and crocks are to be used, they should be well soaked before they are used, and of course the peat and charcoal should also be damp.

There are three main points to watch when potting *Dendrobiums:*

1. *Perfect Drainage*: That is, the water should moisten the compost and then drain away in the shortest possible time.
2. *Pot firmly,* and, if necessary, stake the plant.
3. *Pot high,* so that the crown of the plant is above the rim of the pot, and also be sure not to cover the eyes at the bottom of the pseudo bulbs, as this will rot them and prevent the new growths from coming.

Notes on Chlorophyll

(*Continued from page 12*)

It is the means whereby in the presence of sunlight the inorganic materials absorbed by the plant are converted into organic compounds, starches and sugars, being synthesized from carbon dioxide and water.

Function of Chlorophyll

For the decomposition of carbon dioxide and the synthesis of carbohydrates, energy is required.

The chlorophyll in the tissue serves as a screen which absorbs certain light rays and renders this energy available.

Spectroscopic examination of a solution of chlorophyll shows a number of absorption bands in the yellow, green, blue and violet portions of the spectrum, the bands in the red being the most conspicuous.

The bands indicate that certain of the rays of the solar spectrum do not pass through the chlorophyll, but are arrested and converted into another form of energy.

It is this energy which in the living plant the chlorophyll places at the disposal of the protoplasm for the synthesis of an organic insoluble from carbon dioxide and water.

Formation of Chlorophyll

The formation of chlorophyll is a very complicated process:

The presence of light is an essential prerequisite, and higher plants grown in darkness are always yellow, but such etiolated plants soon turn green when exposed to light.

Very weak light is sufficient for chlorophyll formation; light of medium intensity is most favourable.

Plants do not become green under non-luminous rays, and in ultra violet light greening is very slight.

The production of chlorophyll is also dependent upon temperature; medium temperatures are most favourable and no green occurs at a very low or very high temperature.

The presence of iron is a third condition necessary for chlorophyll production, and without it plants remain yellow, thus suffering from chlorosis.

Oxygen is also necessary, and etiolated leaves in an oxygen free atmosphere remain yellow even in the presence of light.

It has been found also that certain universal salts and carbohydrates are also necessary for the formation of chlorophyll.

Chemical Nature of Chlorophyll

The green colouring matter which is extracted from plants by alcohol, ether, or other solvents, consists of two definite chemical compounds—"Chlorophyll a." and "Chlorophyll b." associated with two yellow pigments, carotin and xanthophyll, and in some cases with reddish brown fucoxanthin.

Of the total green pigments obtained from leaves, about 72 per cent. is chlorophyll a. and the remainder chlorophyll b. The proportion varies somewhat, but the variation does not exceed 10 per cent. An alcoholic extract of the mixtures of Chlorophyll as obtained from garden leaves is intensely fluorescent, appearing cherry red by reflected light and green by transmitted light. The two Chlorophylls have the following formulas—

Chlorophyll a.—$C_{55} H_{72} O_5 N_4 Mg$.
Chlorophyll b.—$C_{55} H_{70} O_6 N_4 Mg$.

hence they differ only in having two hydrogen atoms in one replaced by one oxygen atom in the other.

Both are amorphous powders from which crystalline Chlorophyll can be obtained by hydrolysis.

Chlorophyll a. is blue black, is easily soluble in most organic solvents, and when saponified by alcoholic potash gives a transient pure yellow colour.

Chlorophyll b. is dark green, is somewhat less soluble than the other form, and when saponified by potash gives a transient brilliant red.

Vanda Watsonii

● An interesting *Vanda* among recent importations and one which does not appear to be extensively grown here, is *Vanda Watsonii.*

Considerable difficulty was experienced by the English firm concerned in procuring a plant—twelve firms being consulted before one was obtained.

Vanda Watsonii is a native of Annam, and apparently occurs at high altitudes, since it is classified as requiring cool treatment. It has slender, terete leaves.

The flower spikes are slender, too, and erect, up to two feet in length. The flowers, about 2in. in diameter are pure white, only the proportionately large lip being faintly spotted with red at its base. Each spike bears numerous blooms, and their graceful habit of standing well above the foliage should be most attractive,

Our Terrestrial Orchids

A. G. HAMILTON, Chatswood, N.S.W.

(Part 3)

Prasophyllum

● This genus contains a large number of species. It may be recognised by the position of the labellum, which is situated at the apex of the flower, instead of, as in most of the other species, at the bottom.

The flowers are small, and in some species might be called minute. It is probable that the reversed position of the flower is in some way connected with the pollination.

PTEROSTYLIS NUTANS
Photo by Mrs. Pearl R. Messmer.

Prasophyllum Flavum, R. Br.—I have only once found this species at Reedy Creek (where it grew in pure sand). It was also collected by Dr. Woolls. The flowers, as the species name indicates, are yellow.

Prasophyllum Brevilabre (J. Hooker).—Rather rare. Flowers from end of August to end of October.

Prasophyllum Patens, R. Br.—Flowers in September and October.

Prasophyllum Fuscum, R. Br.—Collected by Dr. Woolls.

Prasophyllum Alpinum, R. Br.—Found on the hills. Flowers in November.

Prasophyllum Rufum, R.Br.—Rare. On flats and creek banks. Flowers in May and June.

Microtis Porrifolia (Spreng.)

These are the smallest terrestrials. The flowers are entirely green, with leaves resembling those of a leek, hence the name.

Porrifolia.—Flowers in October and on into December.

Microtis Parviflora.—Flowers about the same time.

Corysanthes

Hamiltoni, R.D.F. (since named *C. Diemenica*).—In 1878 I discovered a plant, the leaves of which closely resembled those of the other *Corysanthes.* I sent some fresh leaves to Mr. Fitzgerald, but he told me that *Corysanthes* did not extend west of the Dividing Range, but I clung to my opinion and examined the plants several times every year till 1886, when I found a number of plants in blossom, and at once sent fresh specimens to Mr. Fitzgerald, who recognised it as a new species and named it *C. Hamiltoni.* Flowers in July and August.

CORYSANTHES FIMBRIATA
Photo by Mrs. Pearl R. Messmer.

Pterostylis

This is a large genus, usually growing in shady places, popularly known as Greenhoods.

Pterostylis Concinna, R.Br.—Generally distributed in moist gullies. Flowers from June to September. May be distinguished by its forked labellum.

P. Striata, R.D.F.—Rare. I know only one place in the Beaudesert Hills where this plant grows. Flowers in July.

P. Curta, R.Br.—The flowers are large, but short. It may be known by its labellum, the top of which is slightly twisted. Flowers in July.

Pterostylis Acuminata, R.Br. — Collected by Dr. Woolls.

P. Nutans, R. Br.—This is rather rare in the Mudgee district, but very common in the coast district, where it usually grows in open country. The flowers are bent over from the scape, whence the name *nutans* (nodding). Found in Biraganbil Hills and in the gully at Cooyal. Flowers in June and July.

P. Clavigera, R.D.F. (named from the club-shaped glands on the points of the column).—Specimens procured from Biraganbil Hills. Flowers in September.

P. Reflexa, R.Br.—There are two well marked varieties of this plant growing at Guntawang, which I took to be distinct species.

The larger variety may possibly be the plant named *P. revoluta* by R. Brown, but Bentham says that the two forms pass into each other to such an extent that it was impossible to sort specimens into distinct varieties even. I am convinced that R. Brown was right, because they flower at different times of the year, and I found that *Revoluta* occurred only on the Biraganbil Hills on the western side of Cudgegong River, while *Reflexa* was confined to the country on the eastern side. *Revoluta* flowered from March to May. *Reflexa* flowered from July to September.

P. Obtusa, R.Br.—Found only at Cooyal in rich soil, at the foot of a sandstone cliff. Flowers in April.

Pterostylis Parviflora, R.Br.—The plants I sent Mr. Fitzgerald, he informed me were *P. Aphylla,* but added that he considered this only a variety of *P. Parviflora,* so I have placed it under that name. It is generally distributed, but is not very abundant. Flowers in April, May, and June.

P. Mutica, R. Br.—Common in all parts. Flowers from August to October.

P. Cycnocephala, R.D.F.—Also a common plant. Begins flowering a little later than the preceding and rarely lasts past the middle of September. The labellum in both these plants is extremely sensitive, closing the opening of the hood if touched slightly, and both have an appendix to the labellum, in *mutica* rounded, and in *Cycnocephala* shaped like a swan's head and neck.

P. Rufa, Lindl. — Much resembles *P. Mitchellii,* but is a distinct reddish colour. Flowers September and November.

P. Mitchellii, Lind.—Both *Rufa* and *Mitchellii* grow in open country. Flower from September to November, as do the next two species.

P. Squamata, R. Br.—Generally distributed on rocky hillsides. Flowers September to November.

P. Woollsii, R.D.F.—Plentiful on the eastern slopes of the Beaudesert Hills. Flowers in October, November and December. This species is remarkable for the lateral sepals being elongated to as much as 3½ inches.

P. Longifolia, R. Br.—This variety differs from Mr. Fitzgerald's figure in having a smooth labellum. The labellum is extremely sensitive, and I have observed that it frequently imprisons mosquitoes, which probably pollinate it. Flowers from June to September.

(To be continued)

An Orchid Hunt in Lower Burragorang Valley

(*Continued from page 15*)

A few *Diuris, Thelymitra* and *Calochilus* were up, but as yet unidentifiable.

Not a single plant of the evergreen genus *Cryptostylis,* which is almost ubiquitous on the adjacent Blue Mountains, was observed.

Epiphytes previously mentioned in the description of the gullies, were *Bulbophyllum Elisae, B. exiguum, Cleisostoma tridentatum, Sarcochilus Hillii, S. Parviflorus, Dendrobium speciosum, D. æmulum, D. striolatum, D. Linguiforme, D. teretefolium,* var. *Fairfaxii.*

Cymbidium suave was fairly common on the eucalypts, but only one specimen—and that a very fine one—was seen on the paperbarks.

In the springtime, Burragorang Valley, which is so easily accessible for Sydney residents—being only a 2-3 hours' drive, according to the part visited—should prove a perfect paradise for the orchidologist.

Visit of Mr. E. W. Cooper

Mr. E. W. Cooper, of Sanders & Co. Ltd., St. Albans, England, the well known Orchid firm, who visited Australia recently, attended by invitation the January and February meetings of the Orchid Society of New South Wales. The various matters discussed at the meeting have been divided into groups and are set out in the form of question and answer. Mr. Cooper here deals with the subject of

CYMBIDIUMS

Q.—I notice that the compost in which *Cymbidiums* received from England are grown contains quite a lot of what appears to be red clay. Is that necessary for successful culture?

A.—Yes. That red clay, as you call it, is a loam which is used extensively in England and, provided it is of the right quality, all that is needed is the addition of some broken pot pieces to keep it open. If it is what we call too fat, fibre and moss are added. I believe that you have trouble in obtaining a suitable loam here.

Q.—I cannot get any bulbs on *Cymbidium insigne* like they do in England, possibly through giving it too much water or not enough rest. I have had one particular plant for about six years; I get moderate size bulbs but no flowers.

A.—If you get bulbs the size you indicate, dry them before the growth has finished and you will get flowers for certain. Bulbs generally have two growing points and two flowering points, only one each of which develops for a certain period. When the plant has gained strength two growths may come, but if those growths come away too soon they rob the flower spikes, which then remain dormant. In one collection I saw quite a number of plants with two flower spikes, but one spike was in each case from the last year's growth and one from the present growth. Generally, however, when a plant has reached full strength, the new growth throws one flower spike and two new growths. The growth is never in advance of the flower spike. The flower comes first and the growth follows almost at once.

One of my hybrids the year before last gave very good growth but no flowers. Last year I got three growths, all of which flowered, the spikes having 35, 22 and 21 flowers respectively.

Q.—Is that an average number of flowers per spike for that particular hybrid (*Pauwelsii*)?

A.—The greatest number of flowers I have seen on one spike of that hybrid was 39. That plant had 18 other spikes, but it was an exceptionally fine specimen. *Cymbidium Ceres* does not give as many flowers on the spike. The first flower spikes on a seedling may have only 6 to 8 blooms, but ultimately they should produce as many as the parents. A *Cymbidium* really requires to be grown for many years before it will produce a perfect spike.

Q.—I have noticed *Cymbidiums* arrive from England with bulbs approximately a little larger than a penny which have flowered. I can never get them to flower until the bulbs are three or four times that size. I was wondering whether it is natural overseas to flower on small bulbs or whether we require larger bulbs to obtain flowers here than are necessary in England. On any imported plant I hardly ever get a flower on a bulb under two inches through. I also find that a newly arrived plant usually breaks not only from the new bulb but also from back bulbs, which seems to weaken the plant and it consequently takes a year or two to build up again. The increase, therefore, must be very much greater here than in England. I have one hybrid which has been here four years, and the first year it made a single bulb which did not flower. The following year it made two bulbs, one of which flowered. This year there are 18 growths which is exceptional, but they are there, and I am very doubtful whether it will flower this year or the next either.

A.—I should feel very much inclined to pull some of the growths off. That sort of growth is phenomenal.

Going back to the point of the smaller bulbs—it is all a question of individuality. One plant will flower within three years and another will take six years. Four or five years is about the average, and then the first spike is mostly small. You must remember we have to use pipe heat in winter, and therefore our *Cymbidiums* do not grow as freely as yours.

When you receive a plant from England, particularly if it is rather a small one, it has a reverse the first season. It will, perhaps, go a year without flowering or, if it produces a flower spike, it will be a weak one, and that would be an advantage as regards the second year's growth. It will be realised that flowering a weak plant is likely to affect the subsequent growth.

After you get a certain number of bulbs the back ones can be cut right off and those will then make a growth and furnish more plants.

There is a possibility that if you can grow

Cymbidiums with huge bulbs you may get two and even three flower spikes. Orchids frequently have hidden eyes and the *Cymbidiums* may have many such.

The biggest bulbed *Cymbidiums* — that is, among the species—are *Traceyianum* and *giganteum,* and yet some hybrids have bigger bulbs than either of those. Most of the species have small bulbs compared with the hybrids. For instance, *grandiflorum* has a much smaller bulb than *Erica Sander* and the bulbs do not get nearly the number of rings on them in the species as in the hybrid.

Q.—When imported plants arrive with perhaps two leafy growths which do not defoliate on the way out, and 2 to 5 back growths, the bulbs at the back usually wither, and I think you will find that by removing some of those back bulbs you will get a better forward growth than by retaining them. Retaining all the bulbs seems to have the effect of retarding the new growth.

A.—Normally, Orchids would have the greatest number of roots on the front bulb and they decrease in number right to the back. Growing naturally, the roots on the back bulbs are probably dead but have sufficient strength to keep the plant attached to the tree or whatever may be its host. Generally the front bulb would draw on the back bulbs. All the back bulbs of an Orchid have conserved nourishment to support the leafy growth, but beyond a certain stage the back growths keep alive at the expense of the front ones, and it is then necessary to cut those back bulbs off. If there is only one lead there should be at least four strong bulbs behind the flower bulb. After that you may find that the front bulb becomes weakened through having to support the back ones.

The position is this—on being repotted the roots of the back bulbs, even if alive, are injured and the bulbs then undoubtedly become a drag on the front growths. Notice the difference in the new bulbs on plants where the back growths have been removed and where they are left. I think you will find a remarkable improvement where the back bulbs have been removed.

You can increase a *Cymbidium* by taking off the back bulb or bulbs, and if a growth should be produced and the following year another growth, then when the second growth begins to make root, detach the old bulb. The old bulb serves the purpose of feeding the first growth. After that, having no roots of its own, it becomes a drag on the young plant, and should be cut away.

Again, plants arriving from overseas or after a long journey naturally receive a set back and the back roots are sure to decay before the front ones. One must therefore use one's own discretion as to the number of bulbs to cut off or leave on. There is no sense in leaving on back bulbs if there is a possibility of them drawing nourishment from the front ones.

Q.—Regarding the propagation from back bulbs—do not those give small growths?

A.—Naturally the first growth would be small. You should have no difficulty in this matter, but after the new growths have been made do not leave the old bulbs on too long. You should be able to take the old bulb right away after two years.

Q.—I cut the back bulbs off when I repot on arrival of new plants. Is that wise?

A.—I always think it better to allow one new growth from the new arrivals to mature before taking the old bulbs away, then you do not weaken the plant too much.

(To be continued)

Zygopetalum Mackayi

● The genus *Zygopetalum,* though a large one containing many handsome varieties well worthy of attention from cultivators, seems to have been sadly neglected in Australia, for little is heard of any other variety being grown here than *Mackayi*—an illustration of which appears on page 9.

This variety is a native of Brazil, and is admirably adapted to amateur treatment, since it does quite well out of doors with the *Cymbidiums.*

The plants have smooth, ovoid pseudo-bulbs—2 or 3 inches high, surmounted by leaves about 18 inches in length. Usually five or six delightfully perfumed blooms, about 3 inches across, are carried on the flower scape, which stands erect. The sepals and petals are pale green, barred with brownish purple, whilst the large, broad lip is white, lined with purple.

It is a most unusual flower and well worth acquiring.

In cultivation, care should be taken to avoid allowing water to lodge in the hollow of the new growth, as rot will quickly develop.

Cool House Orchid Culture for July, August and September

T. H. JAMES, *Longueville, N.S.W.*

● July, August and September—the days and, particularly, the nights are getting colder, although by September the temperature will start to rise and the Orchids to grow.

The extensive importation of Orchids during the past year prompts me to offer a few suggestions concerning the new plants to those growers who have a cold glass house or bush house, and particularly to those many "freshmen" in the ranks of the Orchid growers.

As to the bush house, I would suggest that the roof, or portion of it for preference, be provided with some sort of covering that will give the new Orchids some protection from the rain. That covering may be of glass or, what serves the purpose admirably, a material known as "Glass Substitute," which can be obtained from A. Hordern & Sons and costs 2/6 per sq. yard. That material is a white cotton fabric impregnated with paraffin wax, is light, and fairly durable. I have adopted it myself and find it satisfactory.

My reason for this suggestion is that plants which have but recently arrived from overseas, which, incidentally, comprise mainly *Cymbidiums*, with a fair sprinkling of *Cypripediums* and *Cattleyas*, should be protected from the rain during the first few months, especially if those first months happen to be during the winter, as, otherwise, there is a possibility of the new growths coming away and, with no root system to take up the excessive moisture induced by wet weather, the development of the plant is likely to be endangered. New Orchids, even in a heated glass house, if given much water in the early stages, will depend largely on that moisture and fail to make roots. The result is obvious.

With *Cattleyas*, of course, very definite protection is necessary both from the rain and also cold for the first winter and even for the second. In fact, I would not advise attempting to place newly imported *Cattleyas* in a bush house at all. For those who have no provision for artificially heating their glass houses and aspire to grow *Cattleyas*, a good plan would be to take them, during the first winter or two, on to an enclosed sun verandah, or some other part of the house which has light and is warmer than outside at night. If prepared to go to the trouble, they could be placed in the glass house on sunny days and brought inside at night. I adopted that plan one winter with quite a number of plants and thought the result well worth while. Otherwise I should have lost many. Now they are used to the conditions and carry on.

DENDROBIUM XANTHOCENTRUM
Photo by W. Schmidt.

New arrivals of most of the *Cypripediums*, the *Cymbidiums*, and also the other types mentioned in my last article, will be quite safe in the cold glass house or the bush house with the covering mentioned, or any other that will keep out the rain but not the light.

Another word about *Cattleyas*. Many readers will have noticed in Orchid notes in various journals references to the difficulty of forcing hybrids into a definite resting period on account of their mixed parentage, and without that definite rest, regular flowering cannot be expected. That trouble does not occur among the species, hence cold house growers would be advised to confine themselves mainly to the species until such times as they have gained sufficient experience to try some of the hybrids. Another point with regard to *Cattleyas* is frequently overlooked and that is the question of the floriferousness of the species as compared with the hybrids. I have frequently seen in the past, six flowers and more on a spray of some of the species. You will not get anything like that on the hybrids. If growers are prepared to house their *Cattleyas* in a structure which can be completely closed at night, I can assure them they will succeed. In fact, from my experience in the past, I am satisfied that after a plant has been thoroughly acclimatised here, and that will take at least two and possibly three years, the species certainly and some of the hybrids can be grown successfully in a bush house.

Regarding those new *Cymbidiums* which form the bulk of the recent importations, as I remarked earlier in this article, protection from the rain until the new growths start to root would be advantageous. Apart from that, the ordinary bush house is ideal until flowers arrive, when cover should again be provided to protect the flowers from the weather and to prolong their life. Above all, do not place these new plants in too large a vessel for the first year. Much better results will be obtained by using fairly small vessels, and when a good root system has been developed repot into larger vessels. The great danger of the large vessel is the maintenance of a reasonable moisture. A large vessel with a correspondingly large amount of compost takes more water to wet, and in the absence of roots will take a long time to dry out, and the compost is apt to become sour. Also, in connection with *Cymbidiums*, readers are urged to study carefully the article in this issue dealing with the remarks of Mr. Cooper, which I feel sure will be found both interesting and instructive.

Many of the *Dendrobiums* will now be showing flower buds. If in the bush house the moisture in the average winter air should be sufficient, even without rain, to develop the buds, but when in flower place them under cover from rain to protect and preserve the flowers. In the cold glass house a little water might now be given to help fill up the flower buds.

There is one point I want to stress about bush houses in relation to Orchids. Do not allow them to become so covered with vines and do not have so many hanging baskets that ample light cannot reach the plants. Unless they get plenty of light they will not flower.

Cultural Notes for July, August and September

CATTLEYAS

F. A. WEINTHAL, *Roseville, N.S.W.*

● Very little can be done at present beyond keeping the plants as reasonably warm as the means available to the grower permit. With a heated glass house this can readily be done to suit the ideas of the owner, whether a night minimum of 60 degrees or any intervening warmth down to, say, 50 degrees is desired. *Cattleyas* will on occasions stand much lower without injury if they are kept very dry. They may come safely through 36 degrees or slightly less, but such temperatures are best avoided, as particular conditions of atmosphere, moisture, etc., on one occasion may mean disaster. Some growers claim benefit to the plants in the cool rest derived from a winter temperature of 50 degrees or thereabouts. This may or may not be so, but a minimum of 60 degrees will assist some hybrids which grow during Winter or start very early into growth; also the more genial temperature will probably help any winter flowers to mature. It may, however, be of interest that a noted Orchid collector reported that in some of the mountainous districts of South America where *Cattleyas* grow naturally, the temperature often drops to 50 degrees and under after sunset, although the days may have been tropical.

In unheated glass houses the minimum temperature can be controlled only to a limited extent, which will mainly depend on district, position, aspect and construction, and in these houses the minimum obtained, or aimed at, cannot reasonably be much above 50 degrees or perhaps less. As previously stated, the plants will accept this if kept sufficiently dry. Shutting down the house while the sun is still available, and covering the glass part with blinds of hessian or thicker material, such as cornsacks, will greatly help. It is thought, however, that the Spring growth in these houses will hardly be as quickly off the mark as where heat is available. The suggestion is that unheated houses be of brick, if possible, the roof only of glass.

In picked positions in milder localities near Sydney some *Cattleyas* will grow in a bush house constructed with closed sides and batten roof without glass, and occasionally such plants may be induced to flower, but the results hardly warrant the experiment, notwithstanding the claims of a few enthusiasts.

I have tried all three methods. *Cattleya Portia* (*Bowringiana x Labiata*) and *C. Chapmanii* (*Bowringiana x Warneri*) were two which showed some results, but strange to say, *C. Bowringiana* would not do. In warmer districts, such as Brisbane and surroundings, glass appears hardly necessary for *Cattleyas*, or such was the experience of the writer many years ago when he grew and regularly flowered a fair number of the *Cattleya* species, such as *Gaskelliana, Mossiæ, Labiata, Schroderæ, Trianæ,* and others, often obtaining three and sometimes four flowers to the spike; hybrids were few and expensive in those times, and so were not included in that collection.

Now as to winter jobs, it is suggested that a useful occupation is washing or otherwise cleaning the outside of the pots to rid them of the green stains or slime; also cleaning up the benches and the house generally. Later when the weather warms up slightly and roots begin to show action, then any repotting or fresh topdressing may be undertaken. All the time, summer or winter, one must be on the look out for pests, and spray to keep down scale. The white scale which worries *Cattleyas* can do a lot of damage to the eyes at base of the pseudo-bulbs if not kept down by washing and spraying. Handle your plants and look at the backs, for very often scale will be found there while the fronts look clean. Give all the sunshine possible to the plants; care however being taken to see that the leaves are not burnt through the glass. Don't worry about a certain amount of yellowing of the leaves, which you will find are generally those on the back bulbs and are due to die off at no far distant time. Such plants may not be as good to look at as those with all nice dark green leaves, but it is thought that the former will win for the flowers. However, the two conditions may in time with care be adjusted, as the bulbs and leaves which form in the brighter light will not so readily be affected by it.

No doubt there are other opinions on this yellowing of the leaves, so how about letting us hear from our readers on the subject?

CYPRIPEDIUMS

JOHN BISSET, *Abbotsford, N.S.W.*

● Although many *Cypripediums* are still in flower, the majority of them have completed their display, and our thoughts therefore turn to the matter of repotting. I do not believe in disturbing the plants unless they require it—a *Cypripedium* in a healthy condition and with enough room in the pot should be left alone.

CYPRIPEDIUM MINOS YOUNGII
A choice bloom of this hybrid of Spicerianum and Arthurianum
Photo. by courtesy E. Beckley.

If the plant has begun to look "off-colour," or if the roots fill the pot or have rotted, or if the mixture has become sour, then repotting is essential and should be attended to as soon as flowering has finished.

The first step is to knock the plant, with the mixture adhering, from its pot. If the root action is vigorous and the roots are clingng to the sides of the container, gently break the pot by placing it on its side and tapping with a hammer—this course usually occasioning less damage to the roots than occurs if they are torn away from the pot walls. Next, carefully remove the mixture from round the roots and then give the plant, roots and all, a good wash under a tap, having first cut away all dead and broken roots. Your plant is then ready for its new home.

Choose a pot of suitable size—never too large. I advocate replacing an unhealthy plant or one which has lost its roots in the same sized pot as that from which it was taken—or even a smaller one—whilst vigorous plants can usually be accommodated in a pot one size larger. Wash the new pot thoroughly to remove all trace of soil or slime, and also wash all crocks to be used as drainage. Allow to dry before use. Pots which have not been used before should be well soaked before use.

Place ample drainage in the form of charcoal or crocks in the bottom of the pot—filling it to about one-third of its depth. Many growers advocate the placing of the crocks on edge rather than flat, to allow the easier passage of water. This seems a good idea.

On the drainage, place a pyramid of the potting mixture, pressing down very firmly. The mixture to be used is one largely for personal choice—within reasonable bounds. Personally, I use for my "slippers" a mixture comprising three parts of finely chopped fibre and one part of moss, also finely chopped. To this, add some ground charcoal and crocks—being careful not to let the dust get in, as this will clog the mixture. Some varieties, such as *Charlesworthii*, receive an additional ration of broken brick, which seems to help them root more vigorously. Others, particularly *bellatulum*, like a few pieces of lime stone. Others again—hardy *insigne* types—are given a small quantity of leafmould or fibrous loam. I do not advocate the general use of loam or peat. They deteriorate quickly and clog the mixture, rotting the roots. Were we able to obtain a good peat here, we would use this in the mixture as they do in England, but our peat is not suitable for Orchids, except, perhaps, *Cymbidiums*.

Having placed the pyramid of mixture on the drainage, place the plant on this, spreading the roots downward. The pyramid should be of such a height as to permit the crown of the plant to be just below the pot rim. Holding carefully in place by the leaves, add more mixture round the sides, pressing down firmly, until the pot is full within about half an inch of the top.

Having repotted, be sparing with the water until the new roots become vigorous.

Thrips frequently attack the plants after repotting and should be carefully watched for. They are the "slipper's" worst enemy and can do untold damage within a very short space of time. Even if quickly eradicated, they leave a permanent blemish on the leaves in the form of brownish or yellowish marks. On the first sign of this pest, spray with a good nicotine solution —I find the best to be XL All, though Blackleaf 40 serves the purpose very well. Unless this spraying is done quickly and thoroughly, the thrips will soon infest the whole collection.

CYMBIDIUMS

H. TAYLOR, *Belmore, N.S.W.*

● *Cymbidiums* require very little attention at this time of the year. All strong plants should be well advanced with their flower spikes—some, such as *giganteum* and *Traceyanum*, having already completed their display whilst others will come on later—the flowering period of the hybrids being a long one.

They require no more attention than to see that the compost does not become really dry, for if this occurs the bulbs will shrivel and the flowers suffer in size and lasting qualities. It is desirable to have a glass shelter over the flowering plants. This will prevent excessive wetness in rainy weather and also protects the blooms from damage—staining from moisture and burning from the sun. The flowers on a plant grown with just this minimum of protection should last ten weeks or three months without the slightest indication of fading.

Do your best to prevent the various chewing insects from making their meals from the juicy sepals and petals. Tie a fair-sized piece of cotton wool lightly round the stalk bearing the buds or flowers half way up, and make sure that the leaves do not contact with the stem above the wool. If the cotton wool is fluffed out and kept dry, no insect will crawl over it.

Great interest will be taken by those owners of newly acquired hybrids, in the colour developing in the buds. But, wait till they open and do not be too sure that the sepals and petals will be the same colour inside, or you may be disappointed. Also, wait till the blooms are fully open before gloating or growling, as they often become darker in colour after being out a week or so.

Repotting should be undertaken as soon as the flowers are over. It is a wise plan to make preparation now. Prepare the mixture and clean up the pots to be used (if they are not already in use). The potting mixture is a most important consideration and only the best of materials should be used. The little extra trouble and possibly expense will be amply repaid, for your plants will grow better and so flower better and their general health and stamina will make them far more disease resistant and, as well, the flowers will last longer and be more brilliant in colour.

My firm uses only the compost as mentioned in the last issue of the "Review," as this, we have found, gives the best results, though *Cymbidiums* will grow and flourish in almost any mixture and even in strong soils if the drainage is perfect.

DENDROBIUMS

C. T. GOSPER, *Lane Cove, N.S.W.*

● What a vast area of the world's surface do we find as the native habitat of this extensive family of the botanical world. Most of India, Burma, Siam, the Eastern Archipelago, the north and eastern coasts of Australia and adjacent Pacific Islands abound in numberless varieties of this lovely Orchid, some of the most desirable and largest coming alike from cold situations as well as from the warmest. *Dendrobiums* can be divided into two sections—those bearing flowers from nodes or joints in the growths, such as *nobile, superbum,* etc., and those throwing out racemes, such as *chrysotoxum* and *bigibbum.* Nearly all of the worth-while Australian species will be found to belong to the latter type.

While the individual flowers of *Dendrobiums* are not, generally speaking, as spectacular as some of the other Orchids, it must be admitted that the quantity of bloom fully compensates for this. Where can we see a finer show of bloom than good old *nobile,* or *thyrsiflorum,* say, with a couple of dozen canes of flowers, can treat us to? *Nobile* is one of the easiest plants to procure and to grow successfully. It can be treated with a little warmth or will do as well or better in a cool bush or glass house. The best result I ever had was in a lattice house with glass roof. The glass so placed is useful in the winter, when flowers are expected. Under cool treatment I have noticed the flowers are more prolific and provided they are kept free from water drips, they last much longer. *Nobile* grown in a closed glass house, and especially if heat is employed, should be watched at this time of the year if bloom is desired instead of adventitious growths. They should be dried off till the pseudo-bulbs show signs of shrivelling, then when it can be determined that bloom is assured, and not growths, water the plants to plump up the bulbs again and develop the size of the flower. Plants grown in a cold atmosphere will need no attention in this regard, as they seldom fail to develop every node into flowers. The cool house therefore seems to be the most congenial and happy home for them, and, incidentally, less attention is needed.

Have you ever tried growing *nobile* in staghorn fibre? Some of our enthusiasts will perhaps smile, but it will do no harm to try one or two, and see how their roots dive down and fasten all through it. They will make themselves so much at home that it will be difficult to get them out of the pots. With this as a compost, water sparingly during the winter months, as the staghorn is very retentive of moisture. While on the subject of *nobile,* I would like to suggest what an interesting collection could be made of this variety alone with its hybrids. It has been more extensively used in hybridising than any other *Dendrobe,* but even apart from this, the type varies so much that you could probably get an assortment of 20 or 30 different kinds, varying in shape, size, and colour. What a contrast between *nobile alba* and *nobile nobilius.* Place the two side by side and see what a nice picture they would make.

There is one phase of Orchid growing which does not seem to be very much practised here, and that is hybridising some of our indigenous *Dendrobes.* Who knows but that some good thing might be evolved, and even if such did not eventuate, the time and effort would be pleasurably spent.

I think that the varieties should be well chosen with a view to improvements in the offspring, such as *falcorostrum* with a coloured variety or *bigibbum* with *speciosum.* Some of our members who are interested in this subject, or who have good collections of Australian varieties, should give us a little talk on the subject.

THE LIBRARY

● An appeal is made to those members of the Society who have had books out for some time, to return them to the Librarian, Mr. C. T. Gosper, View Street, Lane Cove, N.S.W., as soon as possible.

Cypripediums in Southern Queensland

(Part 2)

E. BECKLEY, *Wellington Point, Brisbane, Qld.*

Cypripediums imported from England usually land in an apparently wonderful condition, but they are of course quite dry. A little care is needed not to overdo the watering until the roots become active again. They should be dipped in water at once, carefully drained, and then potted and placed in a shady, damp place, not soaking them again until root growth is resumed. Copious watering would result in rotting roots. Try and keep them just moist.

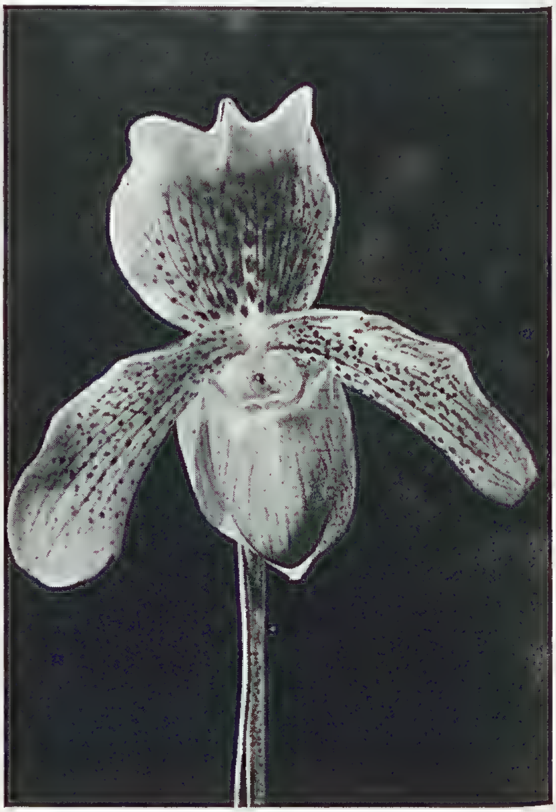
Manuring.—I suppose this can hardly be ignored now that the idea has become popular. I will, however, express the opinion that good compost with perhaps a little bone or bonedust in it would be the safest form of manurial treatment. I should be sorry to adopt the methods which I have read are employed in Singapore, where fresh cowdung is employed.

Be very careful about watering with liquid manure. Some varieties do not like it—rather they respond to it splendidly and then go right out. A very fine collection of "Slippers" in the possession of a friend of mine, went to pieces through watering with liquid manure. This grower did so well with *Insigne* and its hybrids, which do not mind it, and appear to show no after effects, that he tried it on all. Wonderful results the first year—he had learnt to grow *Cypripediums*, and was going to show everybody "Slippers"! Alas! his joy was short-lived. Odd plants seemed to collapse after flowering. Leaves turned yellow—no new growths appeared. Plant after plant looked sick—many went right out. So I pass this on for what it is worth.

● Since writing the foregoing, and that which appeared in the last issue, another season has passed, and in the light of further experience the following may be of interest.

Last September I repotted the whole of my *Cypripediums* in a mixture of osmunda fibre (chopped up small), loamy leaf soil from under an old lantana bush, coarse sand, pulverised charcoal, a very small quantity of powdered cowmanure, and a good sprinkling of bonedust. When potting I used crushed crocks according to strength of root system—a weak plant receiving a good proportion, a strong one much less.

The pots were small 4in. x 5in. and were crocked up nearly half way. A mixture like this is very porous, rich in plant food, sweet, and can be worked into the root system without breaking any roots. The loamy leaf soil should be exposed to the sun for a week or two, and all foreign matter, live roots, etc., carefully removed. As a precaution against pests, the whole should be heated sufficiently on the stove to destroy living insects or eggs. Of course, the proper material to use is "Fibrous Loam," but as it takes 12 months to prepare, few will have it on hand.



CYPRIPEDIUM WELLESLEYANUM
A choice hybrid of C. Godefroyae with C. Concolor
Photo by courtesy E. Beckley.

Many do not understand what is meant by the term. The method of preparation is to cut turves from a good grass paddock—select a place where the stock eat it close. Cut them with a sharp spade as thin as possible, about 1 inch or less in thickness, and stack upside down to rot. In twelve months you will have a rich fibrous potting soil.

All old material and rotten roots were removed and the plants made tight with a potting stick. It was a slow job, but the result has been highly satisfactory, as practically every plant has flowered that could be expected to flower, and improved growth is in evidence. I intend to repot again in September with the same material but omitting the cowdung, as I notice that some of the plants have a mould on the surface soil which is probably caused by that ingredient.

I have also modified my treatment by placing coal ashes on the bench, standing the pots directly on it. During the year I have several times detected thrip, but on immediate and thorough spraying with Nicotine between the pots and overhead quickly settled them and prevented any damage. This pest is very serious and I am certain that my plants would have been ruined by now had I not dealt with the invasion instantly. How fortunate that we have such an easy remedy!

Many Orchid growers think that our climate is too warm for *Cypripediums*, but I feel quite sure that, provided air, shade and moisture are right, they will do well almost anywhere in coastal Queensland. I always think they look fresher and more vigorous and seem to "jump" along during the hot weather more than at any other time, and for that reason I would like to see our Northern friends try a few in as cool and shady a place as they have, say, on the south side of a residence or under a cool shade tree. They should be protected from rain, however, as continued soaking by tropical rains would be injurious. The North is well known to me, so I have a fair idea of the climate.

Continued on page 33

Dendrobium Falcorostrum

H. J. R. OVERALL, *Manly*, N.S.W.

● *Dendrobium Falcorostrum* may fairly be considered to rank among the finest of Australian *Dendrobes*. Whilst the colouring does not compare with the rich violet and purple shades of the Northern species, *D. phalaenopsis* and *D. superbiens*, the glistening white flowers, marked with orange and violet on the labellum, are certainly attractive.

The flowers are borne on terminal racemes—up to twenty on a spike. When expanded, they are about an inch and a half across and delightfully fragrant. The perfume is at its maximum up to noon, and with the sunlight on the flowers it becomes almost overpowering, especially when there are a number of plants blooming together in a confined space.

D. falcorostrum does not seem to be in favour with a number of Orchid lovers owing to difficulties which are sometimes experienced in its cultivation. I would venture the opinion, however, that in many localities this species could be more successfully cultivated if the conditions in its natural habitat were given due consideration. The plant occurs at between two and three thousand feet above sea level in the heavy forest country through the North Coast districts of New South Wales and Southern Queensland, and almost invariably grows on what is locally known as the "Nigger Head" tree—*Notafagus Moorei.* Frequently it can be seen in masses in the upper branches of the trees where the foliage affords a light shade from the summer sun and a protection from the severe winter frosts. When collecting specimens a few years ago, I noted the effect of frost on plants in exposed position on dead trees. These plants were either dead, or at any rate appeared to be dying, whilst other plants on neighbouring trees, but protected by foliage, were in a thriving condition.

Growing in their native state, the flowers appear in September. The new growth starts in December and matures rather quickly during the warm months. The bulbs attain a length of from nine to eighteen inches and become yellow in colour as they mature under the cold conditions. Plants which I have grown in a bush house at Manly, and which flower regularly, do not develop the yellow colouring in the pseudo-bulbs, but remain dark green. Neither do the flowers attain the size and substance achieved by those produced on bulbs matured in the colder districts.

Plants which have been grown in Tasmania for several years on rough cork bark and a little sphagnum moss and sheltered only by a light "ti-tree" covering of the bush house—"ti-tree" from which the leaves had long since fallen, produce strong yellow pseudo-bulbs and the size and substance of the flowers is quite good.

Now is the time to acquire a few of these chaste and sweetly scented *Dendrobes*—ready for the flowering in a few months' time. I advise growers to treat them not as a coddled glass house bloom, but as a hardy outdoor epiphyte which needs but a minimum of shelter from summer sun and winter frost.

Trip to Papua and Rabaul, New Guinea

W. PITTMAN, *Gordonvale, Q.*

● Leaving Cairns on November 19th. 1935, at 11 p.m., we were up early next day (Wednesday) to find that we were abreast of Cooktown, and later we passed Lizard Island, and then through Cook's opening. The following day (Thursday) we tied up at Port Moresby at 6 p.m. Port Moresby is a very dry place. I made enquiries about Orchids, but no one seemed to know what they were. We left Port Moresby at 8 a.m. the next day for Samarai, where we arrived at 8 a.m. on Saturday. Samarai is a very pretty place. You can walk around it in half an hour. I took a walk into the Sports Ground, and on passing a very pretty garden I noticed an Orchid in flower. On viewing this, I was met by a lady. I soon made it known I was interested in Orchids. We introduced ourselves, and she escorted me to her place next door, and there I saw a nice collection of Orchids. *Phalænopsis Rosenstromii* in full bloom. These. I understand, come from Rossel Island, and many other Orchids were in flower also. Time being limited, and as I had to call upon an old school mate of mine, we had to depart, but not before she had promised me that she would give me some on my return. This I did not forget.

Leaving Samarai at 2 p.m. the same day, we were passing through a lot of lovely islands. We arrived at Rabaul on Monday at 6 a.m. After disembarking, we were driven through part of the main road to the city, which is a very pretty drive. It has about three miles of trees in three rows overhanging the road. Then coming into the main street, which is a mile long, we again entered an avenue of mango trees. These trees keep the street cool and shaded, hence nobody wears hats. I spent some ten days in Rabaul awaiting the return of the "Montoro," and I made good use of those ten days. On entering the harbour, you pass a crater, which I might say is still active, as the sulphurous fumes can be smelt the greater part of the day, which makes it very unpleasant. My friend, Captain Waugh, had taken me to many outer stations, which necessitated many miles of car driving through native villages. On either side of the roads they have most beautiful coloured Crotons. On Wednesday I made a call on the Director of the Botanic Gardens, where I met the Acting-Director (as the Director was away on leave), and the head botanist, Mr. Hanson, and the head accountant, Mr. Challis. The Acting-Director, Mr. Froggat, also Mr. Hanson, were very nice and obliging. This was the day of all days. Mr. Hanson and myself then left the office for a tour of the Gardens and inspection of the Orchids. The Gardens consist of about 300 acres, of which most is under cultivation. It has some very fine palms, of which many are 70 to 80 feet high, and other beautiful things in the way of trees and small plants. After a tour of inspection, I met the head gardener, a Mr. Ah Fow. I understand that he has been in this position for over forty years and has planted about 90 per cent. of the Gardens. It is well worth seeing, also the native curios.

This is where I secured the most of the beautiful Orchids. I might say that all the Orchids, with the exception of about six, are grown on Frangipanni trees, but from all appearances they have not been above eighteen months on these trees, as many of them are not named, and they do not know their names.

Following are the descriptions of the named varieties and a description of the unnamed varieties which I secured at Rabaul:

Dendrobium crumenatum.—A very old species, distributed largely over tropical Asia and the Malay Archipelago. The flower spikes issue from the apex of the bulb, sepals and petals equal in size, pure white, lip also pure white. Flowers in Spring. This plant was in flower when I was in Rabaul, but I noticed that there was a purple marking around the outer part of the leaf. Flower about 2 inches. This plant is much like our *undulatum*, but only 3 feet in length and stem a green-yellow.

Grammatophyllum speciosum. — A magnificent Orchid, of which it has been remarked that it richly merits the title of "The Queen of Orchidaceous Plants." It has erect, clustered, terete compressed stems, 5 to 10 feet high, having a few large appressed scapes below, and clothed in the upper part with distichous sheathing lorate below—1½ to 2 feet long, and dilated at the base, the scape issues from the base of the stem, is as thick as one's finger, and grows 5 to 6 feet high. The flowers measure nearly 6 ins. across and are of a deep yellow thickly spotted with reddish brown, the sepal and petals being broadly oblong and blunt ended, the small three-lobed lip yellow, streaked with brownish red, the disc sulcate with three raised plates, and the red lines of the front lobe bristling with short hair. It blooms at different times of the year and will last a long time in perfection if the flowers are kept dry. This plant is also found in Java, Singapore and Cochin China.

Dendrobium eboracense. — This is much like *Keffordii* in appearance, but in a big cluster, stems about 9 inches, flowers small, white spotted with purple, many on a spike.

Arachnanthe Maingayi or Renanthera Maingayi. — Called the Scorpion or Spider Orchid. Flowers pale green blotched with brown.

Ærides Variety.—This plant is very much like the above (*Maingayi*) but the leaves are much larger and very stiff; 6 x 2ins. Flower unknown.

These two above were imported with *V. Miss Joacquin* from Java, and I understand that the *ærides var.* had no label when received. I will comment about the growth of these three Orchids later.

Spathoglottis Varieties. — These are very common. They include the three colours, viz., red, pink and white.

Philadota imbricata—as they spell it. This is a giant alongside the North Queensland variety. Pseudo bulbs 6 x 2 inches ribbed, leaves up to 18 ins. x 3 ins. This was in flower in Rabaul — light dull brown-green, about 3 ins., flower stems about 3 ft. long with flowers about half that length. Grows in very large clusters.

Dendrobium involutum. — Much like *Dend. fusiforme* in every respect, but flowers are a pretty green with a purple throat, small. This was in flower also during my visit. Quite common in New Guinea.

Dendrobium insigne.—Grows in very big clusters, stems are very thin with almost round leaves of 5 to 8 on a stem—stem about 1 foot long—flowers unknown or any other details.

Dendrobium (No Name).—Again like *fusiforme*, but with a big spray of sweet scented white flowers. This also is very common.

Dendrobium (No Name).—Pseudo bulbs 1 foot long, like *fusiforme*, but grows in big clusters up to 30 to 40 leads in a clump, with 3 leaves at the ends. Flowers very yellow. Very common also in New Guinea.

Called the Long Leaf variety—much like a lily in growth, leaves up to 4 feet long, very limp, flower unknown. I fancy it is a native of New Guinea.

A Ground Orchid (*Phaius*) no name given, much like our *grandifolius*, but flower is white. Native of New Guinea.

Dendrobium.—Name not known. Grows in large clusters, stems very thin at base but gets larger towards the top, about 5 leaves at end 4 x 1 in. Flowers very pretty, as it was one mass of flowers when in Samarai. Colour nearly white with strips of purple, lip deep purple, about 2 inches, much like *Dend. D'Albertsii* with the two antelope horn-like leaves.

Dendrobium Smilliae.—With bright orange red flowers. Sorry to say I could not secure a plant of this variety, which, I think, is very common in New Guinea.

Grammatophyllum in full bloom, with two very large sprays of flowers. It was a show Orchid. Luckily it lasted till I arrived in Cairns, where it had many admirers. I have now three plants of this variety.

Re *Vanda Miss Joacquin, Arachnanthe Maingayi* and the *Ærides var.*, along with *Vanda tricolor.* These four varieties are growth right out in the open with no shade whatsoever, the trellis or fence-like place is about 15 x 6 feet with 2 x 2 hardwood posts, 6ft., every 18 in. apart. The Orchids are planted into the ground, which has been filled with charcoal and cocoanut fibre. They have simply taken possession of the whole place, the roots have taken on well to the sawn 2 x 2 and are a picture of health, full of new growth.

Cypripediums in Southern Queensland

(*Continued from page 31*)

Cypripedium flowers last in perfection nearly three months, but I think they should be cut after one month and placed in water, when they will stand another month. A small medicine vial can be hooked with wire on to the edge of the pot and the flower placed in it, thus saving the plant and preserving the appearance of the house. They are of great substance and not easily marked, and will stand transport without special packing as required for *Cattleyas*, etc.

These notes are written in the hope that they will assist any who are not satisfied with their efforts in growing *Cypripediums*, and although I believe that everyone should extend in the direction of whatever he or she may be most successful with, yet I find it hard to think that anyone could fail with *Cypripediums*.

In the words of a famous firm, as applied to *Cymbidiums*—"If you kill a *Cymbidium*, you ought not grow plants of any kind."

H. E. SMART

for

CYMBIDIUM SPECIES AND MODERN HYBRIDS

Our range of healthy and vigorous specimens of these beautiful out-door subjects is unsurpassed. Connoisseurs are invited to view our collection. Prices are competitive. We emphasize that our Stocks are mature and growing well. Fresh shipments arriving at frequent intervals from notable overseas hybridists. We also stock an assortment of Dendrobiums and Cypripediums. Compare our quality, size, and prices at nursery.

Sobraon Road - Eastwood - N.S.W.
and Show Grounds, Pacific Highway, Gordon.
Phone: Epping 1439, and JX3052

TAYLORS

ORCHID GROWERS
IMPORTERS AND EXPORTERS

5 ACACIA ST., BELMORE
'Phone: UL1045 SYDNEY

ORCHIDS

We cordially invite all Lovers of Beautiful Flowers to inspect our comprehensive stocks of well-grown and attractive plants. Our experience is always at the service of amateurs, and all postal inquiries receive our prompt and courteous attention.

At the shortest notice we can send Trained Cultivators to inspect or take charge of collections. We can give you expert advice on the erection or alteration of Glass-houses or Bush-houses.

Write for our fully illustrated Catalogue, which is free on application. Contains growing instructions as well as Price Lists.

TAYLORS

Splendid stock of

CATTLEYA, CYMBIDIUM,
CYPRIPEDIUM, ODONTOGLOSSUM
and PHALÆNOPSIS hybrids.

Over 3 acres of newly-built houses devoted to Orchids

FLANDRIA

BRUGES (Belgium)

SANDERS

St. ALBANS

ORCHID GROWERS, HERTS., ENGLAND

OVER 50 YEARS' EXPERIENCE
AT YOUR SERVICE

TO SUIT ALL HOUSES **ORCHIDS** TO SUIT ALL CLIMES

WRITE FOR
Special Offers—Latest Price Lists
and
"Cultivation of Orchids"

An illustrated and interesting Book free on application to Members of the Orchid Society of New South Wales

●

SANDERS ORCHID GUIDE
A complete work on all best known species
1927 EDITION—POST FREE—21/-

ORCHIDS

Cymbidiums — Cattleyas — Dendrobiums — Cypripediums, &c.

You get Good Plants at Good Prices from

Armstrong & Brown

Tunbridge Wells, England

Write for Price Lists. All orders received shall have our very best attention in packing and selection of the plants.

You will obtain bigger and better plants by importing direct.

ORCHIDS

Orchids of merit in great variety
Ranging from seedlings to specimens
Choice Exhibition or Commercial varieties
Hybrids from parents of distinction
Interesting Botanical Specimens
Delivered all over the world, by:

Stuart Low Co.

Nurseries: Jarvisbrook, Sussex.

Head Office: Bush Hill Park, Enfield, Middlesex, England

Catalogues on application. Inspection of our houses invited. Offer of collections.—small or large—prepared on request.

Australian Grown Bulbs

Secure your requirements NOW

BLACK RANUNCULUS: 12 roots in 3 distinct varieties, 2/6; 24 roots, 4/9; 12 roots of each sort, 7/-. ANGEL'S TEARS DAFFODILS: White, 9d. ea. LILIUM ROSEUM: True rose coloured variety, 1/3 each. Full DOUBLE CHRYSANTHEMUM-FLOWERED ANEMONES, Mixed colours, 2/6 dozen. CHERRY PINK LADY TULIPS, rare, 9d. each. The Black MOURNING IRIS (Susiana), strong roots. Lavender FEATHER HYACINTHS, 3/- dozen. BUTTERFLY TULIPS: Mixed colours, 9/- dozen. GLOBE TULIPS, yellow, white, wine, 1 each, 3/6. YELLOW CROCUS (true), 2/6 dozen. AUTUMN BELLS, for rock garden, white, 2/6 doz. New TURKESTAN TULIP MARGOLETTI, yellow splashed, red, 9d. each. 1500 other Bulbs available.

Get "THE WORLD'S BEST BULBS," 1/- posted. *The Finest Bulb Book in the Southern Hemisphere.*

PHILIP MONTAGUE

Bulb Specialist

FRANKSTON, VICTORIA

W. J. HAGGETT

370 PARRAMATTA ROAD
PETERSHAM

●

Maker of fern tubs and casks to any size.

●

Petersham 3074

ORCHIDS OF SIAM

Cypr. callosum, Phal. Esmerala, Renant. coccinea, Rhyn. cœlestis, V. Denisoniana, and all kinds of SIAMESE ORCHIDS at MODERATE PRICES.

Catalogues free—Exchanges considered.

The Bangkrabue Nursery

24kh. Phaya Klahom's Lane
BANGKRABUE, BANGKOK, SIAM

INDIAN ORCHIDS

Fine collections of showy Orchids for £1, £2/10/-, and £5. Packing and Postage free to any address.

G. GHOSE & CO.

Exporters of Orchids, Liliums and Himalayan Flower Seeds.
TOWNEND, DARJEELING, INDIA

ORCHIDS & CALADIUMS

CYPRIPEDIUMS, 6 sorts for 24/-; 6 sorts CYMBIDIUMS, 23/-; 12 sorts Grand DENDROBES, 38/-; 12 sorts showy Orchids, 28/-. 24 sorts named CALADIUMS, 24/-. Post free. Catalogues of Orchids, Bulbs, Seeds, and Wholesale Quotation for Orchids, free. A copy of "ORCHID GROWING IN N.S.W." sent free with orchid orders.

The CHANDRA NURSERY

P.O. Rhenock, Sikkim 16 (Bengal)
INDIA

WATER LILIES

Six distinct colours—flesh, rose, white, yellow, red, salmon, for 27/6, or 5/- each posted.

J. OVERALL

Darwin Nurseries
Sulphur Creek . . . TASMANIA

ORCHID GROWERS

For supplies of
TODEA FIBRE, SPHAGNUM MOSS, &c.

●

Write

GEO. PAYNE

WINGELLO, N.S.W.

NATURAL HISTORY BOOKS

New and Second-hand, including a special purchase of 1600 from the Library of the late W. Howat Esq. Full list on request. Also FIELD NATURALISTS' REQUISITES, MICROSCOPES, Telescopes, Field Glasses, Survey Instruments, etc.

N. H. SEWARD PTY. LTD.
457c BOURKE ST., MELBOURNE

SIAMESE ORCHIDS

Ærides, Cypripediums, Dendrobiums, Phalænopsis, Vandas, etc., etc., etc., at reasonable prices; also willing to exchange.

PHRA MAHA VICHAI

591, KADICHIN, BANGKOK, SIAM

CHAPMAN SON & DAVIDSON

Drummoyne Rd., Drummoyne, N.S.W.

Teak Baskets
Copper wired throughout

PRICE:	5in.	12/- doz.
	6in.	13/- ,,
	7in.	14/- ,,
	8in.	16/- ,,
	9in.	18/- ,,
	10in.	22/- ,,

ORCHIDAL

A proven German Orchid Fertilizer which produces remarkable growth and magnificent dark, almost black-green, foliage.

PRICE: 6/- per ounce.
£4 per pound. Post free.

One ounce makes approximately 30 gallons fertilizer.

•

Sole Agents:

W. Hermon Slade & Co., Ltd.,
Manufacturing Chemists,
ROSEBERY AVENUE,
ROSEBERY
Postal Address: BOX 1540 D.D., G.P.O., SYDNEY.

THE ORCHID REVIEW

- Founded in 1893, by the late R. A. Rolfe, of Kew. The only Journal dealing exclusively with Orchid Lore, featuring articles on the History, Cultivation, Hybridization, and all matters of interest to the Connoisseur, Amateur, and Trader.
- Exhibition Reports and Registration Records of new Hybrids accurately kept and published.
- Price, One Shilling and Sixpence, monthly, postage free. Back volumes and complete sets, bound or unbound, can be supplied from

ORCHID REVIEW LTD.
5 TAVISTOCK ST., COVENT GARDEN, LONDON, W.C.2

If you are a flower lover, become a member of the Orchid Society of your own State; and join in appreciation of the climax of plants' evolution. Visitors welcomed at meetings.

The Orchid Society
of New South Wales

Meets every month on alternate last Tuesdays and Thursdays, in Room 507, Phillip House, Phillip Street, Sydney at 8 p.m.

The dates of the next meetings of the Society are as follows:—

AUGUST: WEDNESDAY, 26th
SEPTEMBER: TUESDAY, 29th
OCTOBER: THURSDAY, 29th
NOVEMBER: TUESDAY, 24th

A hearty invitation is extended to all interested in Orchids to attend.

Communications regarding the Society should be addressed to:

T. H. JAMES,
67 Arabella Street, Longueville.
'Phone, B6351

Victorian Orchid Society

President:
T. C. ALSTON,
Batman House, 103 William Street,
MELBOURNE

Secretary:
F. W. CHILVERS,
5 Harcourt Street, Auburn, E.2
MELBOURNE

Queensland Orchid Society

President:
MILES R. FOX
Queensland Fruitgrowers' Association
BRISBANE

Secretary:
B. W. A. MOLLER
G.P.O. Box 269 D.
BRISBANE

Meeting Place:
MINIATURE RIFLE RANGE BUILDING,
Boundary Street,
BRISBANE

Printed and Published in Australia by the Orchid Society of New South Wales
G. Herman Slade, Hon. Editor.

Wholly set up and printed in Australia by Shepherd & Newman, Ltd.,
Yurong Street, Sydney.

196.4-1

October–December, 1936.

Australian
ORCHID REVIEW

C.T.G.

Price 1/6

The Official Organ of
The Orchid Society of N.S. Wales.

OFFICERS
of
The Orchid Society
of New South Wales

●

President:

HIS HONOUR JUDGE H. F. MARKELL, K.C., B.A., LL.B.,
"Kooyong," Hastings Road,
WARRAWEE

Vice-Presidents:

E. A. HAMILTON,
16 Hercules Street,
CHATSWOOD

REV. H. M. R. RUPP, B.A.,
The Rectory,
RAYMOND TERRACE

Hon. Secretary:

T. H. JAMES,
Arabella Street,
LONGUEVILLE

Hon. Treasurer:

L. F. HAWLEY,
121 Middle Harbour Road,
LINDFIELD

Committee:

C. A. JAEDE, M.B.,
4 Rodey Street,
MASCOT

S. C. JAMES,
39 Duntroon Avenue,
ROSEVILLE

Journal Sub-Committee:

C. T. GOSPER
View Street,
LANE COVE

G. H. SLADE, B.Sc.,
"Raiatea," Oyama Avenue,
MANLY

R. M. STEWART
14 Bannerman Street,
NEUTRAL BAY

AUSTRALIAN ORCHID REVIEW

Volume 1 **October - December, 1936** No. 4

Contents

Æridovanda Mundyi 22
Aids to Orchid Culture 26
An Inspection of the President's Collection 17
Annual Meeting of the Orchid Society of N.S.W. 6
An Orchid Hunt in the Bellinger River Valley 11
A Rare Vanda Hybrid 16
A Useful Accessory 24
Back Bulbs 14
Building up a Collection 23
Christmas Meeting 5
Coelogyne Cristata 6
Cool House Culture 30
Dendrobium Delicatum 16
Editorial 5
How to Hybridise 15
Odontoglossums and Genera 7
Orchid Culture in North Queensland 25
Orchidologia Zeylanica 12
Our Terrestrial Orchids 31
Potting Dendrobiums 32
Rhytida Strangei 27
Stanhopeas 21
The Genus Dendrobium 9
The Library 27
The Orchids of Lord Howe Island 13
Visit of Mr. E. W. Cooper 20
Watering Orchids 28

INDEX TO ILLUSTRATIONS

Brasso-Cattleya Cliftonville 25
Coelogyne Cristata 4
Cypripedium Harrisianum Superbum 30
Cypripedium Lowii 15
Dendrobium Moorei 13
Dendrobium Primulinum 9
Odontoglossum Auriga 7
Rhytida Strangei 27
Sarcochilus Fitzgeraldii 11
Stanhopea Frankensteiniana 21
Vanda Miss Dinger 16
Vanda Sanderiana 17
Vanda Tricolor 19

Subscription: 6/- per year, post free.

BISSET'S ORCHIDS

Famous throughout the Commonwealth

Special Offers for November

Cymbidium Species

A selection of FOUR nice plants, including *Lowianum*—olive, green, yellow and red; *Grandiflorum (Hookerianum)*—apple-green and yellow; *Giganteum*—brown and yellow, etc.

READY POTTED, £1/1/- THE FOUR LARGER PLANTS, £1/10/-

Cymbidium Hybrids

SPECIAL OFFER of CERES—The best pink; and PAUWELSII—yellow and red—both prolific flowerers

HEALTHY ACCLIMATISED PLANTS IN 10in. EARTHENWARE TUBS

30/- and 35/- each

Also that finest and rarest of the species

Insigne Sanderi

EXQUISITE SHADE OF PINK AND WHITE

30/- and 35/- each

Vanda Amesiana

The choice delicate-pink, Bushhouse Vanda

3/6 each

NOW IS THE TIME!

My extensive importations of Indian Orchids commence about middle of November

DENDROBIUMS—CYPRIPEDIUMS—VANDAS, &c.

Plants of all sizes—Send your requirements and state price. Mine will suit your means. Order early.

FROM 3/6

Usually less than Indian list prices—and the

DENDROBIUMS WILL FLOWER SHORTLY

All species of usually cultivated Orchids always in stock. Potting mixtures, fibre, moss, special pots and tubs at Reasonable Prices. Freight or postage always extra.

Special attention to packing all Country and Interstate Orders

FREE—My 52 page, profusely illustrated Catalogue, containing Price Lists and Cultural Notes. WRITE FOR IT.

JOHN BISSET

48 WAREEMBA STREET, ABBOTSFORD, N.S.W.

General Nursery—1 ALFRED STREET, LEICHHARDT

Inspection cordially invited. 'Phone: Drummoyne 1124

CYMBIDIUMS

Smart's Garden Service

for Cymbidium Species and Modern Hybrids

Our collection of Cymbidiums — both species and hybrids — is worthy of growers' attention. All mature, healthy, and vigorous specimens, our stock contains the very latest and best varieties procurable from the leading overseas growers, as well as the proved old favourites.

FOR SIZE AND QUALITY WE ARE UNEQUALLED

PRICES: From 25/- to £5

We also cater for every kind of garden shrub and plant.
Seedlings of Special Quality.

AZALEAS and HYDRANGEAS in great variety. Prices competitive.

Visitors always welcome. Stroll round our grounds and choose plants to your requirements.
Situated on the left-hand side of Pacific Highway, between Gordon and Pymble.

Smart's Garden Service

819-857 PACIFIC HIGHWAY, GORDON, N.S.W.
'Phone JX3052

Stock Nursery: H. E. SMART, Sobraon Road, Eastwood. Phone: Epping 1439

BLACK & FLORY

SLOUGH

ENGLAND

Cablegrams: "Orchids Slough"

●

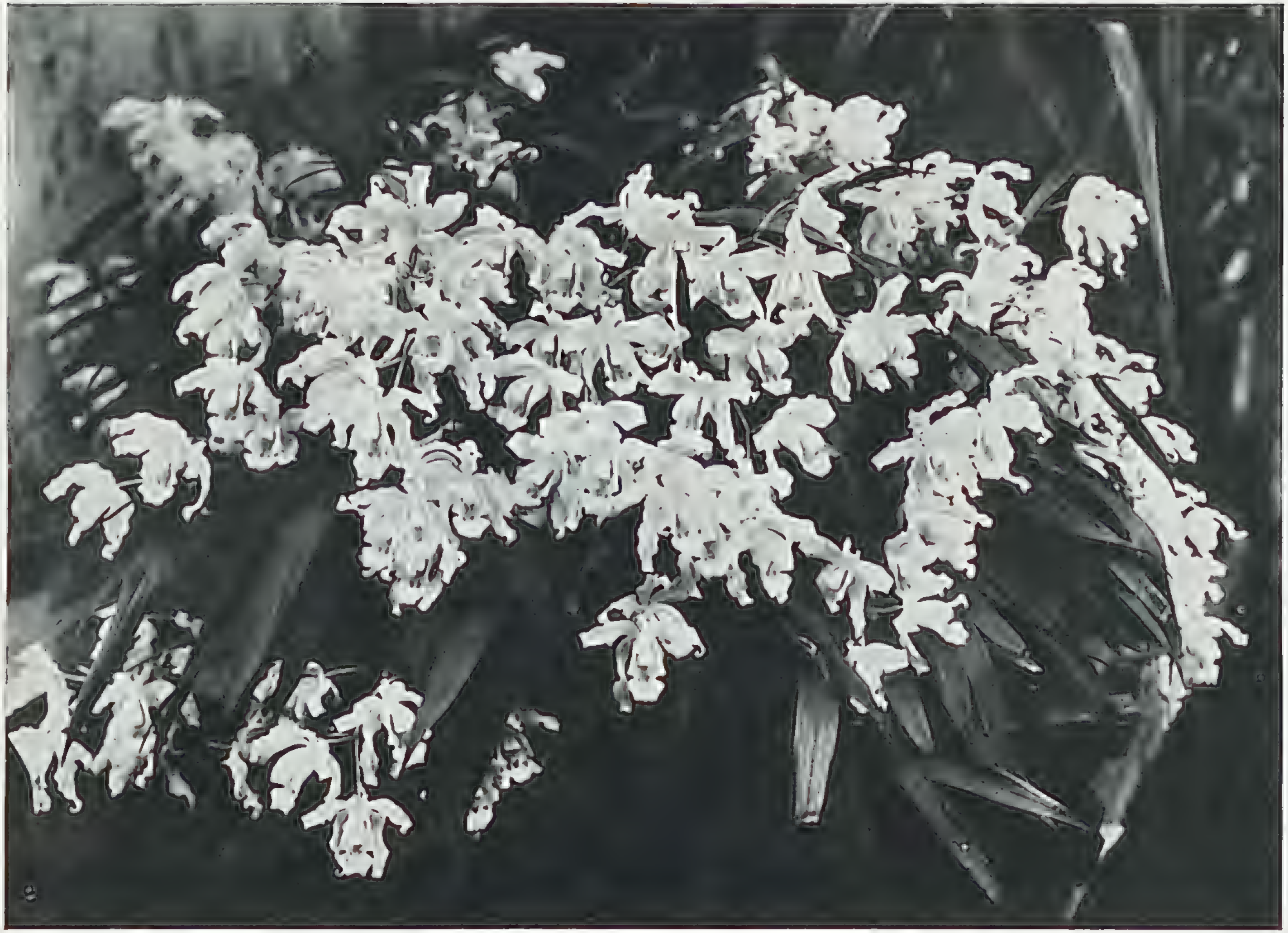
Vigorous and clean plants in all sections.

Unrivalled in Hybrid Cattleya, Brassocattleya, Albino Cattleya and allied hybrid genera. Collections from £6 per dozen.

Cypripediums: The demand in recent years has exceeded the supply of this increasingly popular orchid, but we hope to make offers next spring from our large developing stock. We have distributed many of the best Cypripediums in cultivation.

Odontoglossum hybrids in fine plants and great variety at £3 per dozen.
Miltonias Odontiodas Cymbidiums

COELOGYNE CRISTATA



This magnificent specimen of Coelogyne cristata was grown by Mrs. E. M. Mitchell, of Neutral Bay, N.S.W. The plant carried over 40 spikes, each bearing four or five blooms of good size. They are pure, glistening white, the lip being marked with yellow

Photo by H. J. R. Overall.

Australian Orchid Review

Editorial

The Charm of the Species

● Psychologists have classified hobbies into groups. We have the physical fitness hobby—followed by golfers, tennis players, and the like; the creative hobby—illustrated by those who make wireless sets and indulge in amateur carpentry; the acquisitive hobby—represented by stamp, coin, or birds'-egg collectors—and for that matter by all collectors, and many other groups—represented by conjurers, photographers, sporting event spectators, pigeon racers, big and small game hunters and some politicians, to name but a few.

Those who follow the cult of the orchid as a hobby are fortunate in having one which belongs both to the creative and the acquisitive groups—so avoiding from quite a substantial section of the community that suspicion of a sneer with which one habitually, though often subconsciously, regards the hobby of his neighbour if it differs materially from his own.

It is this double-barrelled classification which so greatly adds to the pleasure associated with the growing of orchids—firstly, the joy of acquiring new varieties—the acquisitive aspect—and then the satisfaction of watching the plants grow and thrive under care—the creative side.

Though in danger of being contradicted, we suggest as the more attractive of two almost equally fascinating aspects of our hobby, the first—the acquisitive aspect.

How many of our readers remember the not very distant days—quite recent days actually, notwithstanding the vast flood of perfect hybrids now available to us—when an orchid-grower's collection was judged by the variety of the species he had—when, for example, one's *Cymbidiums* were restricted to about half a dozen, and any less common variety was regarded with envy? Now the hybridists, with their skill and patience have produced so many exquisite hybrids that the acquisitive side of our hobby is gradually dropping away. Once we could boast of a fine plant of—say—*Cypripedium Charlesworthii*, and our fellow growers would know the variety and be able effectively to appreciate our achievement. What happens now? We tell our friend that our plant of *Cypripedium Cardemona* is carrying half a dozen blooms, and he merely says, "Is it?"—not knowing—or caring—what it may be like.

Grow the hybrids by all means,—grow them and strive to grow them better than your fellows, if only for the beauty of their flowers,—but never overlook the charm of the species if only for the joy it gives to acquire something rare—something which your fellows do not possess.

Nor will this pride of acquisition be your only joy, for, lovely though many hybrids be, the species hold their own in beauty. Can *Charlesworthii* be improved upon for grace of form or colouring amongst "Slippers," or *Curtisii* for unusualness, both of shape and colouring. And what of *grandiflorum* and *insigne Sanderi* amongst the *Cymbidiums*, if only for colouring alone? And again, what hybrid *Vanda* can surpass the perfection of the species *Sanderiana*, or what hybrid *Dendrobium* that of *Findlayanum?* We could give endless comparisons in support of our plea for the species, but lack of space—that age-old journalistic excuse—confines us.

Again, we say, grow the hybrids, but give the species, too, a place in your houses—and in your hearts—and so preserve that extra feature of our hobby which makes it so attractive.

The Christmas Meeting

The Orchid Society of New South Wales has decided to hold its December meeting at the rooms of the Chelsea Book Club, State Shopping Block, Market Street, Sydney, on Tuesday, December 22 next. The meeting will be conducted on informal lines, similar to the corresponding meeting of last year. Members are invited to bring friends and every available flowering plant they have. So that the necessary arrangements can be made for supper, kindly notify the Hon. Secretary by 'phoning B6351 (Parcels Post), of the number of guests you intend inviting. A charge of 1/6 per head will be made to cover cost.

Coelogyne Cristata

Mrs. E. M. MITCHELL, *Neutral Bay, N.S.W.*

● *Coelogyne cristata,* in my opinion, is one of the loveliest of the hardy, cool-growing orchids.

There are, according to the books, a number of varieties of *cristata*—the better varieties being *Leemoniana* and *alba.* Another variety—*Chatsworth*—the variety with the largest flowers—is known as *maxima,* having a spike which bears eight or nine flowers.

Coelogyne cristata is said to have been discovered more than a hundred years ago—in 1825. Its habitat is Northern India in the district of Nepal. It grows there at an elevation of from 5,000 to 8,000 feet above sea level, on trees and rocks, and fully exposed to the sun.

Some time ago, I was fortunate in obtaining in Tasmania a fairly large clump of this plant, well established in a box. I left it in the box for its first season with me and it flowered profusely. Being an extremely vigorous grower, it was necessary to move it next season, and the transfer was made to a strongly constructed hardwood basket. At the bottom of this box, I placed crocks and charcoal and over that, coarse fibre. On this, again, was placed a mixture of leaf mould, chopped fibre and Sphagnum moss. The move did not halt the plant's vigorous growth, and it has increased considerably each year since, so that it will soon need a further move. Its flowering has been consistently good.

The flowers are white with an orange throat. Five or so are carried on each spike and the individual flowers are about two inches across. In shape, they are not unlike a small *Cattleya.* The plant is evergreen, and the foliage is attractive.

From experience I have found that bench culture is best for this variety. Though many growers advocate basket culture, my experience has been that the plants become too dry. The bulbs shrivel easily from excessive dryness and when this occurs, recovery is slow. The general culture of the plants is very simple in this climate where they do best in a bush-house—though I remove mine under glass when coming into flower to protect them from wind and weather.

The flowering season is from mid-July till mid-September, and the correct time to re-pot and divide is immediately after the flowering. Much care should be taken in this dividing owing to the strong tendency of the bulbs to shrivel when interfered with. The alternative method would be to thin out the old bulbs—new growths soon filling up the vacant spaces.

I was greatly interested in the suggestions of an English expert recently in Australia. It appears that in England, *Coelogyne cristata* is often grown on a wall. Wire netting is so arranged that it stands a few inches away, the space between the wall and the netting being filled in with fibre topped with moss. The bulbs are inserted between the mesh of the wire and in the course of a few seasons, festooning the wall, make a wonderful display.

The Second Annual Meeting of the Orchid Society of New South Wales

● Though it was intended to follow the precedent set last year in making this meeting somewhat of a social function, the attendance of the general public—which by some means learned that a magnificent display of orchids could be seen—rendered the holding of any kind of meeting impossible, all business being deferred to the September meeting.

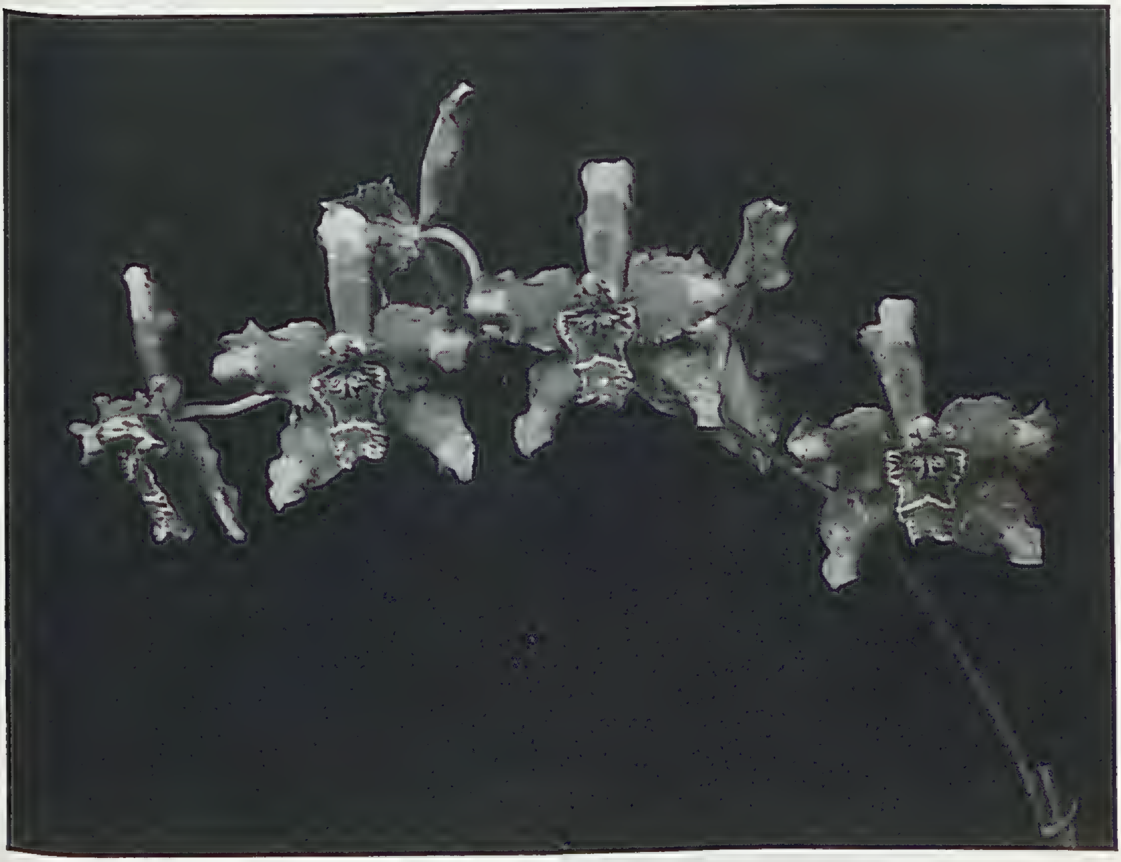
The display of orchids was such as had never before been seen in Sydney, and the lounge room of Vere-Matthews Cafe was taxed to the utmost to accommodate them. More than a hundred exhibits were shown.

Cymbidiums, of course, predominated, and apart from their beauty proved an education as to the magnificent types of hybrids now available.

Amongst so many perfect blooms, it would be invidious to single out any one in particular, but two were outstanding and deserve individual mention.

Coelogyne Cristata—exhibited by Mrs. E. M. Mitchell, of Neutral Bay—was remarkable for its size and the fact that it was a perfect mass of lovely white blooms. A photo of this magnificent specimen appears in this issue.

Brasso-Cattleya The Friar—exhibited by Mr. S. C. James, of Roseville—was, perhaps, the finest of its type ever seen here. The huge bloom was truly magnificent.



ODONTOGLOSSUM AURIGA

This fine spray was grown out of doors by His Honour Judge Markell, of Warrawee, N.S.W. The colour is rich, reddish brown, the sepols and petals being tipped with pale, pinkish white. The lip is edged with white.

Photo by R .Olsen (Hon. Photographer)

Odontoglossums and Genera

L. PERFECT, *of the Victorian Orchid Club*

● *Odontoglossums* are practically a new introduction into Victoria. At the present time there are not a large number grown here. In England they take the premier place.

There are two things which are much against us: Firstly, our hot climate, secondly, the difficulty of importing plants in good condition. The *Odontoglossum* seems to be the worst of travellers. The *Odontioda* travels much better. The *Odontonia*—a few have arrived in Melbourne—has arrived in excellent condition.

We will first run through the species of which we see so few to-day. O. *crispum*, *Pescatorei*, *triumphans*, *tripudians*, *gloriosum*, *Lindenii*, *grande*, *luteo-purpureum*, *Septrum*, *polyanthum*, *naevium*, *cirrhosum*, *Uro-Skinneri*, and a few others.

There are also a few *Odontoglossums* of a smaller bulb type: O. *Rossii*, O. *Cervantesii*, O. *caudatum* and O. *maculatum*. These all do better when suspended near the glass.

There are also a few natural hybrids. The first of these to flower in England was O. *excellens*, a cross between O. *Pescatorei* and O. *triumphans*, O. *Loochristense*, a cross between O. *Crispum* and O. *triumphans*. O. *Wilckeanum*, a cross between O. *Crispum* and *Luteo-purpureum*.

There are also a number of very fine blotched Crispums,, of which we never hear anything. Such varieties as *Odontoglossum crispum Pitteanum*, *Fernley Sander*, *Roger Sander*, *Britannia*, *Perfection*, *Frans Masreel*, *Luciano*, *Leonard Perfect*, *Cooksoni*. These plants all realized from 500 to 1150 guineas. No doubt there are a number of small plants of these varieties still in English collections. Being plants of such value, they have all been cut to pieces to make as many as possible.

The continuous cutting of these varieties has brought them into what we term a crippled stage. When they get into this condition they very seldom flower, as they do not make large enough bulbs to carry a flower spike.

The hybrids, to-day, are very numerous. The colours in *Odontoglossum* hybrids originated chiefly from two white or rose species. They are *Odontoglossum crispum* and *O. Pescatorei.* This cross produced *Odontoglossum ardentissimum,* a very heavily marked specimen. The first plant of this cross was sold at Prothero & Morris, London, as *Odontoglossum crispum* Queen of the Earth, and realised £300. The buyer was not long before he realised it was a hybrid.

The O. ardentissimum was crossed again with *O. crispum,* which crossing produced *O. eximium,* a greatly improved flower in size and colour. So here you have two parts *crispum* and one part *Pescatorei.* This is the foundation of most of the coloured *Odontoglossums.*

The *Odontoglossum Harryanum,* which we all looked forward to producing some excellent things, was disappointing. The first hybrid raised in this class was *O. crispum* crossed *Harryanum,* and named *Harryano-crispum.* This did not alter the *Harryanum* much. Crossed again with *O. crispum, O. amabile* was produced. Since then it has been very little used.

Then the *Cochlioda* was tried for crossing with *Odontoglossum.* This produced the *Odontioda,* a family with long branching spikes of rich red colours. It is the *Odontioda* which I think will be the best for our Victorian climate, as they like a drier atmosphere than the *Odontoglossum* and also travel much better.

Then we have a comparatively new genus of home-raised hybrids. By introducing the *Miltonia* strain into the *Odontoglossum,* a race of warm growing hybrids has been produced and named *Odontonia.* They are brilliant in colour and adaptable to variable temperatures, and will grow in both warm and cool houses; but require to be shaded from the direct sun. The plants of this variety I have seen in Australia arrived in perfect condition. I think there is a great future here for the *Odontonia.*

The culture of the *Odontoglossum* in Victoria, in my experience is the most difficult of the three. The chief thing is shade. If you can get a shady position, you then have a cool position. Like all other orchids, *Odontoglossums* like to get dry before they are rewatered; but they must not remain dry. They require no fire heat through the year, but must have sufficient covering, either with glass or bush house, to protect them from frost. I think the ideal place is a bush house which is not exposed to the wind. Thrip is the greatest pest, but when not grown under glass, they keep quite clean. Strong light is the worst possible thing to let them have, as a position with strong light is always a breeding place for thrip.

The potting of *Odontoglossum, Odontioda* and *Odontonia* is similar. They like a mixture of half Osmunda fibre and half Sphagnum moss. Potted moderately firm, with just sufficient crocks for drainage—say, to a 5-inch pot, 1-inch of crocks—use as small a pot as possible, leaving only sufficient for two years' growth. The back bulbs should be at the edge of the pot. There are two periods in which *Odontoglossums* may be potted; one is when the growth is 2-inches long, the other, just as the bulb is commencing to make up. They make new roots at each of these periods. They should never be potted during very hot weather. After potting, they require plenty of moisture, should be kept in as cool as possible, with very careful watering until the new roots become active.

Propagating is very easy, as the back bulbs break very readily. The best plan is to cut through the rhizomes while the plants are growing, always leaving at least two bulbs behind the lead. As soon as the growth is about one inch long it may be removed and potted.

When plants are being repotted and have more than three bulbs, they can be cut off, labelled, and laid in a moist position on the stage, and they seldom fail to break into growth.

Flowers on small plants of *Odontoglossum* should not be left on too long. They should be left to fully develop and, if then cut, they will stand in water for a long time. By doing this you greatly assist to get a strong bulb for the next year. The spike can then remain on the plant until it dies.

After plants have flowered, be very careful with watering until plant becomes active again.

Always remember that *Odontoglossums, Odontiodas* and *Odontonias* require shade.

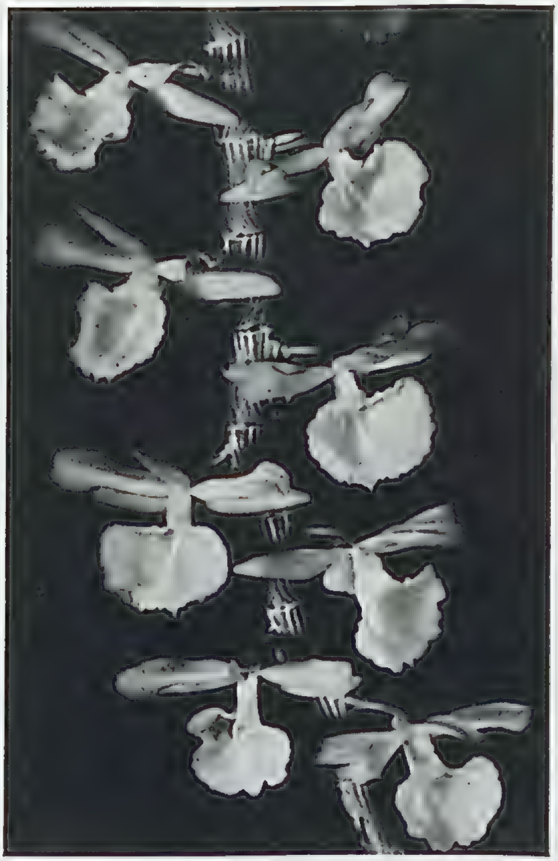
Always try to keep the foliage green.

These varieties like plenty of air, and delight in night moisture.

The Genus Dendrobium

P. A. GILBERT, *Lakemba, N.S.W.*

● In his *Systema Orchidacearum**, R. Schlechter enumerates 610 Genera, the Genus *Dendrobium* being grouped in the Subtribe *Dendrobieae*, along with five other Genera. The number of described orchidaceous plants borders on 8,000 (eight thousand). A Swedish botanist, Oloff Swartz, created the Genus *Dendrobium* in the year 1800, when he described nine species. At the beginning of 1900, nearly 400 species were known. During 1910, Kranzlin, in a revision, estimated 571 species, while in 1931, C. J. Willis, in the sixth edition of his Dictionary of the Flowering Plants and Ferns, brought the total up to 750. The labours of Schlecter, and Dr. J. J. Smith, of Holland, in the islands of the East Indies, materially helped to compile this astounding total. Since 1931, an average of about ten new species have been described for each succeeding year, bringing the total up to about 800 (eight hundred) species for the present time. There are forty-five or more species in Australia.



DENDROBIUM PRIMULINUM

A beautiful and easily grown Dendrobe. The colour is lilac with sulphur lip.
Plant grown and photographed by T. C .Harveyson.

Dendrobium is easily the largest genera of Orchids, its nearest rivals appearing to be *Pleurothallis* with 510, *Bulbophyllum* 465, *Epidendrum* about 400, and *Oncidium* 350 odd species. Owing to the remarkable differentiations of the flowers—excepting the column—and the vegetation of its members, botanists have found it expedient to divide the genus *Dendrobium* into sections, to facilitate its systematic study. Lindley was first to realise the importance of such a system, his scheme comprising ten sections. Bentham followed with a modification of Lindley . The most recent, however, is that proposed by Schlechter, which contains about thirty-eight sections. To some it may seem wearisome, but specialists find it necessary to group the peculiarities of vegetation and inflorescence, taking as much notice of vegetative details as of floral characteristics.

As a phase of Orchidology, it has always interested me. The want of time, together with the inaccessibility of the world's orchid literature, has precluded many from pursuing that subject more deeply. After much inquiry, I learnt that Dr. J. J. Smith, of Holland, was the most likely authority to give me any information on the classification of the genus *Dendrobium.* I wrote to Dr. Smith, who promptly replied, saying:— "Referring to your letter of 29/7/'35, I am sending you a list of the sections of *Dendrobium,* chiefly following Schlecter, who has given us a rather useful classification. However, much will still have to be altered before the system is quite satisfactory. To each section I have added a few examples. Hoping it may be of some use to you." I feel that I am deeply indebted to Dr. Smith for enabling me to make available such an interesting system to Australian students.

The genus *Dendrobium* is freely dispersed over the south-eastern portion of Asia, being particularly abundant on the Himalayas about Nepaul and Sikkim, extending into Upper and Lower Burma, and the adjoining province of Moulmein, the richest in species of all countries.

---

* Published in 1926. Several new genera have been established since.

It occurs on the Western Ghats of south-western India, in Ceylon, and in the Malaya Peninsula, spreading through Siam to southern China, the northern distribution terminating in Japan. The genus is also found on all the large islands—Philippine, Borneo, Sumatra, Java, Papua—and many of the small islands—Celebes, Ceram, Timor, and others—between southern Asia and Australia. In Australia it is chiefly confined to the Pacific coastal rain forests, stretching intermittingly from Cape York to Tasmania, a distance of over 2,000 miles. Many of the Melanesian and Polynesian Islands harbour occasional species.

In New Zealand, *Cunninghamii* is the only species. The most westerly is probably *amoenum,* being found on the western Himalayas, while *biflorum* at Tahiti is the most easterly representative, those species being separated by over 10,000 miles. *Moniliforme,* of Japan, is the northernmost species, with Tasmania sheltering the southernmost member in *striolatum,* 5,750 miles or so separating them. Those outposts give an idea of the magnitude of the area over which the genus has spread, resembling a rectangle. With the exception of *Bulbophyllum* it is doubtful whether any other genus of orchids has such a wide and peculiar distribution, and within that vast expanse, species adapt themselves to every conceivable condition in habitats.

Some species follow a latitudinal course in their dispersal, such as *nobile,* extending from the Himalayas to China, while many of our Australian species are longitudinal in their distribution, *tetragonum* serving as an example, being found in the vicinity of Cairns, North Queensland, 16 deg. south, and on the Cambewarra Mountains, New South Wales, 35 deg. south, an approximate distance of 1,400 miles. Others are narrowly circumscribed.

Probably no *Dendrobe* is more adapted to greater extremes in weather than *speciosum,* for I have seen that species growing high up in the trees of a subtropical rain forest, as well as on the face of a sandstone cliff, 150 miles inland, well over the Dividing Range, and to the west of Coolah; where it is exposed to frost, snow, and the blast of cold, dry westerly winds in winter and the fiery ones of summer. The rain forest variety has huge pseudo-bulbs, large leaves, and lengthy spikes of flowers, while the western sample has small shrivelled pseudo-bulbs growing compactly, and rarely producing a somewhat degenerated flower spike. The species, with its varieties, extends from North Queensland to Eastern Victoria.

Some species luxuriate near the sea-board, like *undulatum* and other members of the section *Ceratobium;* while *nobile* may be found hugging the snowline or flourishing in the vaporous valleys of the Himalayas. Many thrive under extremely dry conditions, others requiring high humidity. Quite a number are adapted to extremes of temperature, a few like comparatively cool surroundings, but most of the equatorial and inter-tropical *Dendrobes* prefer a warm equable atmosphere, growing in the full sunlight, in the shade, the great majority, however, thriving in broken sunlight. In their wild state, *Dendrobes* are found attached to trees, rocks, or growing in sandy loam. On the McPherson Range, *Kingianum* is found growing in pockets of loam overgrown with grass. With such diverse habits, the impossibility of adopting a standard of cultivation for all species is apparent.

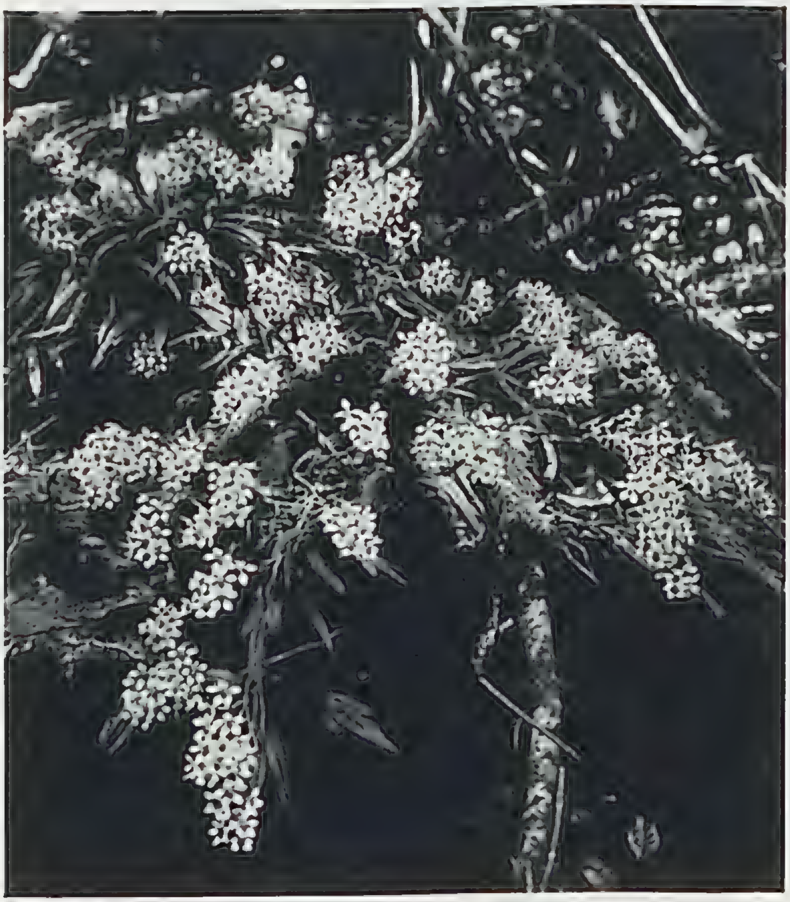
There are many peculiar forms. *Mirbilianum* has very stout pseudo-bulbs six to seven feet long, while *violaceoflavens* attains the astonishing height of from ten to sixteen feet, the specific name being in keeping with the plant. Both species are found in Dutch New Guinea. Dr. J. J. Smith, in the *Orchid Review,* vol. 43, No. 504, records the following observations on *violaceoflavens*: "Plant very large, 3-5 m. high. Leaves ovate-oblong to lanceolate, the largest about 23 cm. long (9 inches), 13.5 cm. wide (5½ inches). Racemes about 47.5 cm. long (19 inches) lax, many-flowered. Flowers measuring 4.5 cm. across (1¾ inches), pale yellow or cream-coloured, the lip veined with violet, sometimes the sepals and petals are dotted with the same colour; sepals oblong; petals hardly longer, not twisted, spathulate, 2.8 cm. long; lip with five approximate keels, middle lobe spathulate on account of the sides being strongly recurved at the base. A giant orchid, and together with *lasianthera,* the most imposing and beautiful species of the section, *Ceratobium.*"

Place those species alongside our pigmy *Schneiderae,* and we get a vivid comparison of the prodigious variations in the vegetation of the genus. The curiously divergent forms of leaves are also noteworthy, the gherkin-like leaf of *cucumerinum* suggesting very little generic relationship with the giants mentioned above. Nor need we ponder over the great periods of time which must have elapsed to bring about that extraordinary divergency. Floriferous species like *teretifolium* are beautiful to behold, when each tiny flower jostles its neighbour, and hangs out like the stars of the Milky Way. And so one could go on reciting comparisons between the peculiarities of the members of the immense genus. (*To be continued.*)

An Orchid Hunt in the Bellinger River District, N.S.W.

Mrs. D. J. BARR. *"Thornfield," Bellingen, N.S.W.*

Foreward—The following article embodies the substance of a letter received from Mrs. Barr by the Rev. H. M. R. Rupp. The Bellinger River is one of the principal streams of the N.S.W. North Coast. Bellingen is the chief town in the valley, which comprises rich farm lands, extending to within a mile or two of the river mouth at Urunga. In its upper portion the valley is flanked by lofty and rugged ranges, covered by extensive brush forests. A few miles to the north of Bellingen, this rampart forms an almost impregnable fortress of cliffs and steep declivities intersected by deep gorges, down which mountain torrents discharge their waters to the lower levels. The orchid hunt described by Mrs. Barr took place in this area.



SARCOCHILUS FITZGERALDII

This picture illustrates perfectly, Sarcochilus Fitzgeraldii growing in its natural state on a rock in a heavily shaded gully. *Photo by Mrs. Herbert Curtis.*

● I have been very anxious to find *Sarcochilus Hartmannii*, and in the hope that it might occur in some of the wild gorges beyond Gleniffer, my husband and I, accompanied by a party of younger folks, recently explored one of these, in which there is a fine waterfall visible from a distance of several miles. We had with us a lad who knew exactly where it is possible to descend the walls of the ravine to the bed of the rushing stream. It was necessary to use a rope. The guide went down ahead to fix the rope, and then I was the first to be sent down. You will have some idea of what it was like when I say that we used four lengths of rope, sixty feet each. I started, but lost my footing almost at once. I held on to the rope, but went down so fast that my hands got burnt, and next day I felt as if my arms had been wrenched from their sockets.

Having reached the bed of the ravine, we began to climb up towards the waterfall, the track being an irregular combination of huge boulders and icy water. The higher we climbed the bigger the volume of water that rushed to meet us. The scenery was very beautiful. Large forest trees grew among the rocks, among them cedars—safe enough here from timber-getters. *Dendrobiums*, mostly of the pencil-orchid group, hung from nearly every tree; and staghorn, elkhorn and bird's-nest ferns were abundant. I counted fourteen different species of orchids on the way up. We found it advisable to discard shoes and socks as the rocks were slippery. Personally I felt more secure on all-fours! Often we had to wade through the cold stream—it had been a frosty winter morning and the sun does not reach the bottom of the ravine. Between tender feet and the numbing effect of the cold water, the going was not too good. Sometimes I felt inclined to sit down and weep!

I was surprised to come across *Dendrobium Kingianum* in this damp and shaded gully; it was an exceptionally fine growth, over two feet high. *D. Mortii* was growing on a rock-face; fine, healthy plants. I climbed up, one of the girls holding my feet, and secured three specimens.

The rocks became more and more difficult to negotiate, and I got a bad scare when my husband's feet went from under him and down he came on his face, cutting his forehead and bruising his nose. It might easily have been much worse; but I must confess that at this point I decided I did not want to reach the waterfall. The younger people went on. Most of them suffered cuts and bruises: I was congratulating myself on my immunity, but my turn was yet to come.

We began the return trip on the opposite side of the creek bed. *D. Kingianum* and *Sarcochilus Fitzgeraldii* were in abundance, also *Liparis reflexa*. The going was very bad. At one place where we had to wade, the water was waist-high. I was groping about with a stick for a shallower place, my husband being ahead of me, when my feet slipped on the rocky bottom and down I went. Was it cold? Oh, no! D. grabbed me by the collar and saved me from being swept down towards a small waterfall below. We must have made a nice picture. D. hanging on to me like grim death, while I floundered about trying to get back on to my feet. But nobody laughed! More tumbles and bruises were suffered before we got back to where we had descended into the gorge—human blood was shed freely there that day.

Three of the party had remained at the point of descent, and they welcomed us with cups of tea—the best we ever had in our lives, I think. Climbing up out of the gorge, D. had another bad fall. Although we used the rope, it was terribly hard to make headway. It was dark before we got home. We had failed to locate the much-desired *Hartmannii*, though we could not grumble at the orchids we had found. But as we commiserated with each other over our sorely-bruised bodies and stiff joints, we smiled and told one another that this was the end of a perfect day.

Orchidologia Zeylanica

● The Orchid Society of New South Wales acknowledges with thanks receipt of the June issue of "Orchidologia Zeylanica," the quarterly bulletin of the Orchid Circle of Ceylon.

This number of the publication is quite up to its usual very high standard of interest to all orchid growers. It contains many fine articles and is profusely illustrated—several of the illustrations, notably, *Cypripedium Dreadnaught*, being in colour.

We have read with interest the article on *Vanilla*—the Orchid of Commerce. How few people realise that their ice-cream, their chocolate, and so many other of their food-stuffs are flavoured with "Orchid Extract"—especially in Australia, where duties favour the use of the genuine article in opposition to the synthetic product. The article describes the method of extracting the essence—from propagation to the final refining process.

Other articles deal with Orchid Freaks, double flowered Orchids, the germination of Orchids, *Cyprepediums, Coelogyne Massangeana*—to mention but a few at random, and affectionate reference is made by several writers to the native orchids of Ceylon.

Dr. E. Soysa, the Hon. Editor, has written in most interesting fashion his impressions of the Malay Archipelago—from the orchid-lover's view-point. Incidentally, we ascertain that Dr. Soysa has left Ceylon for Europe, and we cordially wish him a pleasant holiday there.

Though the problems of our brother orchid growers of Ceylon are problems of a warmer clime than ours, we have a great deal in common, and we in Australia can read "Orchidologia Zeylanica" with appreciation in the knowledge that from it we can glean much interesting information.

The Orchids of Lord Howe Island

Dr. C. A. JAEDE, *Botany, N.S.W.*

● About four hundred and twenty miles north-east of Sydney is the tiny coral island of Lord Howe—the most southerly coral island in the world. Originally a whaling station, later famed as the centre of the Kentia Palm-seed industry (this palm being found only on this land speck), this island is now becoming a very popular holiday resort of New South Wales. The lure of warm waters of the lagoon, the clean, warm sands of the beach and of the fishing for blue fish, trevally and kingfish was, and is, responsible for my annual sojourn on this island paradise.

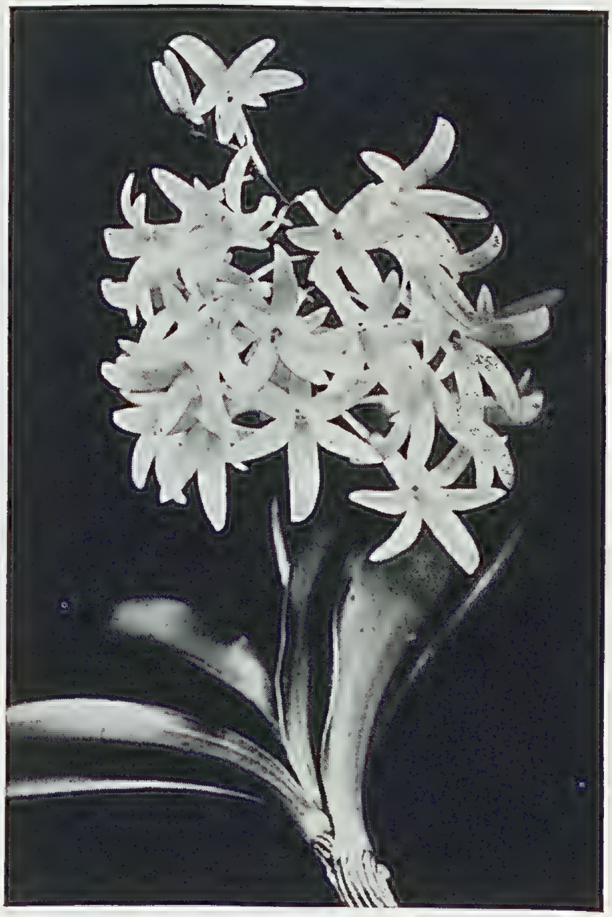
Lord Howe Island is but seven miles long and of an average width of about half a mile, and is half-moon shaped—the concavity facing south-west. The southern end is mountainous and is occupied by two tall mountains—Gower and Lidgbird, 2,800 and 2,400 feet high respectively. The twin peaks are connected by a saddle about 1,000 feet in height, from which a tiny creek drops to the ocean in the south-west. The northern portion of the island is hilly, too, but the hills are not rugged as are the two mountains and their summits are only some 780 feet above sea level. The island is mainly of volcanic formation, only the area in the centre and the foreshores being sandy. The climate is ideal—the temperature never falling below 56 degrees in winter and seldom rising above 85 degrees in summer. A moderate humidity is the rule.

The feature of the island's flora is, of course, its palms—*Kentia Fosteriana*, or Thatch Palm; *Kentia Belmoreana; Kentia Canterburyana*, the tall mountain palm; and *Kentia Moorei*, the pigmy of the genus, whilst the extraordinary Pandanus Palms and the Banyans, too, grow in great profusion. On the mountains are found numberless tree ferns, polypodia, and many interesting lichens and fungi. Most of the tree life is stunted—only occasional specimens exceeding 50 feet in height. The average would be from 20 to 30 feet.

Though the climatic conditions approach the ideal, it is nevertheless remarkable that Lord Howe Island—equidistant as it is from New South Wales, New Zealand and Norfolk Island—has any orchids at all—and more remarkable still is the fact that such orchids as it does possess appear to be distinct species. How came these orchids to this tiny speck 300 miles from the nearest land?

Orchid hunting is by no means my principal pastime on this delightful resort, with its many counter-attractions, but nevertheless I still manage to find time to look for a few.

My first find was *Dendrobium Howeanum*, a variety of the New South Wales *Dendrobium gracilicaule*. It is found all over the island, on the flats, valleys, mountain tops and cliff edges. It grows, too, on low scrub, trees, rocks and, at times, in the soil when the plants have fallen from the trees. The plants in tree hollows often become enormous—pseudo-bulbs growing two feet in length and clumps of over 400 bulbs are common. The plants growing on scrub and rocks, however, are very stunted and their pseudo-bulbs seldom extend a foot. I am in-



DENDROBIUM MOOREI

This beautiful native of Lord Howe Island is described in Dr. Jaede's article. The photograph is natural size.

Photo by H. J. R. Overall.

formed that in Spring the perfume from the tiny yellow sprays is exquisite.

The flowers of the Lord Howe Island orchids are not remarkable for their size. *Dendrobium Moorei,* however, is really remarkable for the purity of its white, frosted blossoms.

I originally found this species growing on Mt. Gower from 1,000 feet above sea level. The plants are small, pseudo-bulbs shining, fluted, green, rarely over 9 inches in length. They grow on rocks, tree ferns, scrub, and appear to do particularly well in the soil. The best plants were those upon tree ferns. They flower in Autumn.

On my last trip to the island, I located *D Moorei* at the other end of the island, growing in a narrow, vertical strip and coming down to within 100 feet above sea level. Here it was that the orchid was growing particularly well in soil. Why should an orchid show such an extraordinary difference in habit on the same tiny island, and why should it confine itself to a thin strip of country?

This same peculiar localisation was found when I came upon some plants of *Cleisostoma erecta.* This is only found in an area of a quarter of a mile square—nowhere else has it been found. The "Tangle Orchid" disdains trees and grows in small, dense clumps on the ground amongst trees under the scrub, or in the grass. A rock it will adhere to, but never a tree! It is solidly constructed like a miniature *Renanthera,* and must have a most disagreeable taste, for the island goats leave it alone. Its flowers, even for a *Cleisostoma,* are tiny.

Only one other orchid was found. This occurs on scrubby trees on hill crests under dry conditions in full sunlight. I handed a few plants I had collected to Rev. H. M. R. Rupp, who flowered them at Woy Woy, and identified them as *Bulbophyllum tuberculatum*—previously only found in New Zealand. My co-vice president became far more enthusiastic over this than if an entirely new orchid had been discovered! However, on account of its extreme scarceness on the island, and of its tiny greenish-yellow blossoms, it will not become popular with growers. Islanders have told me of a similar plant growing on moist cliffs on Mount Lidgbird. As the two conditions are so different, maybe this is another new variety.

One peculiar fact remains to be told. About eighteen months ago I purchased at the Sydney Municipal Markets, a plant brought from the Gosford district (N.S.W.) with flowers exactly similar to *Dendrobium Howeanum.* Its growth, however, was quite different from *Dendrobium gracilicaule.* It came from a volcanic district.

I cannot recommend Lord Howe Island as an orchid-collector's paradise, but as a holiday resort it very closely approaches the ideal.

Back Bulbs

CLARENCE T. GOSPER, *Lane Cove, N.S.W.*

● There are different ideas in regard to the treatment of the old pseudo-bulbs on *Cattleyas* and *Dendrobiums,* etc. The idea is, generally, that they are a nuisance and a drain on the main plant. This, to me, seems to be contrary altogether to the working of nature, which strives to maintain to the last effort the health and propagation of the plant.

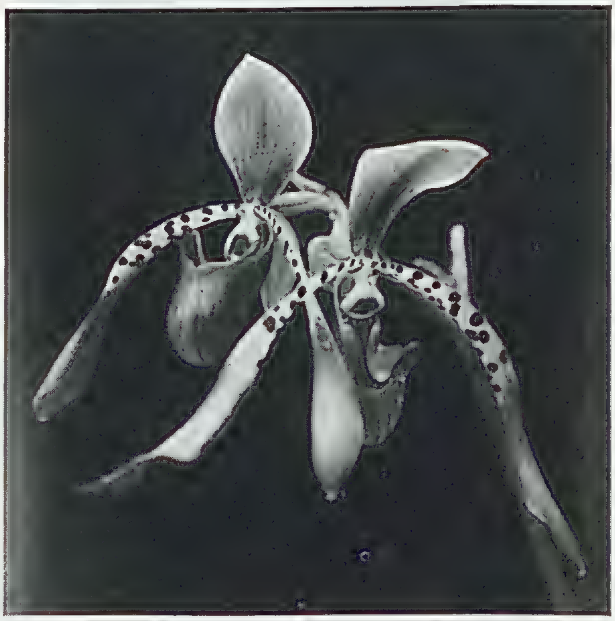
As for these old bulbs having no vitality, I would like to mention the case of two which, last year, I detached from a *Cattleya* plant. They were very much shrivelled, and were cut off with the intention of burning them, but on looking more closely, I noticed a fairly good "eye," so decided to pot them up and give them a chance.

It wasn't long before they got to work, and in the one season gave a good bulb which flowered with one splendid bloom. Now, how are we to reconcile this with the belief that they are of no value to the plant. Of course, unless there is a clean, green and healthy looking "eye," it is only waste of time to try to grow them, and in that event, I agree that they are unsightly; but still, I do not think that they are a drain on the main plant. About four months ago I received some *Cattleya* plants, newly imported. These plants I treated to a liberal division of the pseudo-bulbs, taking care, all the time, that each division had a good "eye," with the result that instead of one lead I now have two, three and even four to a plant. This may cause the leading growths to be somewhat smaller than they would otherwise have been, but I anxiously look forward to much better furnished plants in the course of a season or two. Some of our growers may think this rather drastic treatment, but the patience of growing them on may be well rewarded.

How to Hybridise

L. F. HAWLEY, *Lindfield, N.S.W.*

● The article in the last issue of this *Review* under the above heading, explained how the crossing of *Cattleyas* was brought about, and it is to be hoped that some of the readers of the method explained have experimented with successful results. As previously mentioned, evidence that the pollen has taken on a *Cattleya* cross is manifested within twenty-four hours, when the petals and sepals begin to droop and the whole flower assumes a withered appearance. The growth in the seed pod is remarkable, and some pods grow into an enormous size, having regard to the general character of the plant and flower. The seed pod of a *Brasso-Cattleya* cross made by the writer in February last is now 3¼ in. long and 2 in. wide, is of a bright green colour, and gives every indication of growing even larger still. The number of seeds a pod of this description will contain is a matter of pure conjecture. English authorities vaguely estimate that a normal sized pod contains anything up to 500,000 seeds. It must be remembered, however, that there are occasional failures and that sometimes a seed pod when opened will be found to contain no seeds whatsoever. This, of course, is due to the fact that the pollen has not taken and that the stigma of the flower selected to bear the seed has merely been agitated, causing the seed pod to form with no seeds inside it. The foregoing however, is by the way, our article this month being primarily intended to explain the method usually adopted in the crossing or hybridising of *Cypripediums.*



CYPRIPEDIUM LOWII

This interesting species is a native of Borneo. It is of unusual shape and attractively coloured, the dorsal being brownish-purple veined with yellow, whilst the long petals are violet with black spots. The plant was grown by John Bisset, of Abbotsford

Photo by courtesy of J. Bisset.

Whether we adopt the method of buzzing like a bee, or carry out the operation in silence, we must still, to accomplish our object like the bee or the fly, carry pollen from one flower to another; always bearing in mind the careful selection of the varieties to be crossed, because it is only through this that all upward and forward progress in this branch of our hobby can tbe accomplished. As the majority of readers are no doubt aware, the construction of the *Cypripedium* flower is characteristic and differs to a very great extent from the majority of other orchid flowers. If we examine a *Cypripedium* flower closely, it will be observed that there is a shield-shaped staminode in the centre of the flower with two pollen bearing masses on each side of the column, which is situated immediately behind the staminode. The stigmatic surface is the shiny rounded back of the staminode underneath the column and is hidden, in a front view of the flower, by the bottom portion, which resembles the heel of a lady's slipper. In making a cross, it simplifies the operation to divide the slipper portion of the flower so that both portions of the division can be folded back, thus fully exposing the stigmatic surface referred to above. As a matter of fact, no harm will be done if the "slipper," or pouch, is removed altogether, thus further simplifying operations. Having cut or removed the "slipper," we then, by means of a pointed match, take either or both of the pollen masses from the one parent flower and smear this pollen on the stigmatic surface of the other parent flower which is to become the seed bearer.

(*Continued on page* 22)

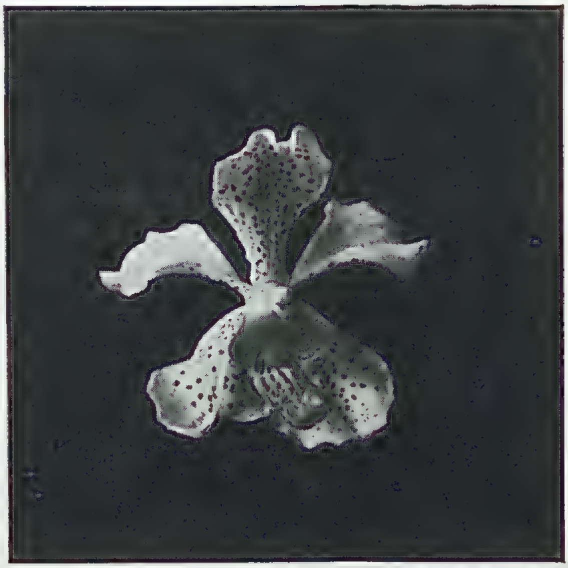
A Rare Vanda Hybrid

● To have plants presented to you from a distant land in perfect condition and in full bloom has been the good-fortune of Judge Markell, who has just received three rare hybrids from Java.

One of the most interesting is the hybrid between *Vanda Miss Agnes Joaquim,* variety *grandiflora* ,and *Vanda tricolour,* which is illustrated here.

The general aspect of the plant is peculiarly distinctive; but its leaves and flowers are fairly intermediate between the two parents. *Vanda Miss Agnes Joaquim* has round, pointed (terete) leaves, and *Vanda tricolor* possesses the typically strap-shaped leaves usually associated with *Vandas.* The hybrid has deeply furrowed V - shaped leaves, they are long and pointed and are very similar to *Vanda Amesiana.* However, the impression the plant gives from a distance is quite different from *Vanda Amesiana,* because the leaves are so widely spaced apart, there being approximately one to two inches between them, so that the plant grows quite tall.

At present the plant is about 3 feet 6 inches high, and appears to be most floriferous and free growing. The spikes have produced about fourteen flowers on each, while the individual blooms are beautiful in the extreme, being large and of a soft rosy colour, heavily spotted with small crimson dots. The lip is beautifully marked with purple and orange.



VANDA MISS DINGER
This beautiful hybrid of Vanda Agnes Joaquim, var. grandiflora, crossed with Vanda tricolour, is the subject of the accompanying article.

Dendrobium Delicatum

W. SCHMIDT, *Turramurra, N.S.W.*

● About two years ago I discovered a few nice patches of *Dendrobium delicatum* on a high cliff of the mountain range in Southern Queensland. The plants were not in flower when I found them. I took a small patch of plants, almost destroyed by bushfire, home to my bush house, where they are flowering now profusely in different shades of pale lilac to nearly white.

Many years ago, I found a few plants at Spring Bluff, near Toowoomba. In both cases the plants of *D. delicatum* grew mixed with *D. speciosum* var. *Hillii* and *D. Kingianum,* and I am convinced that *D. delicatum* is a natural hybrid between the two species mentioned. Whilst the Toowoomba plants of *D. delicatum* flowered with nearly pure white flowers, the plants of the other locality show more or less of the red influence of the *D. Kingianum.* With the object of finding a cause for this, I revisited lately the mountain range in the hope of finding both parents in flower. Though I found hundreds of *D. speciosum,* most likely on account of the very dry conditions during last winter, I could not see one of these in flower. I saw only one plant in flower on a tree in a nearby gully, where the conditions had been less severe than on the exposed rock wall. Also the *D. Kingianum* plants had fewer flowers than one would have expected, but all I did see had intensely coloured flowers, about the darkest I have yet seen. This may account for the light colouring in the delicatum plants of this locality. The *Kingianum* plants of Spring Bluff are mostly very light coloured, and this evidently resulted in a white flowering *D. delicatum.*

In both localities amongst the *Dendrobiums* grows the pretty *Sarcochilus Hartmannii.* Near Spring Bluff ,where only a few plants of *S. Hartmannii* remain, these are much smaller in leaf and flower on shorter stalks; in the other locality where a good quantity is still growing luxuriantly, the spikes are much stronger and longer with more and better flowers.

An Inspection of the President's Collection

AUGUST, 1936

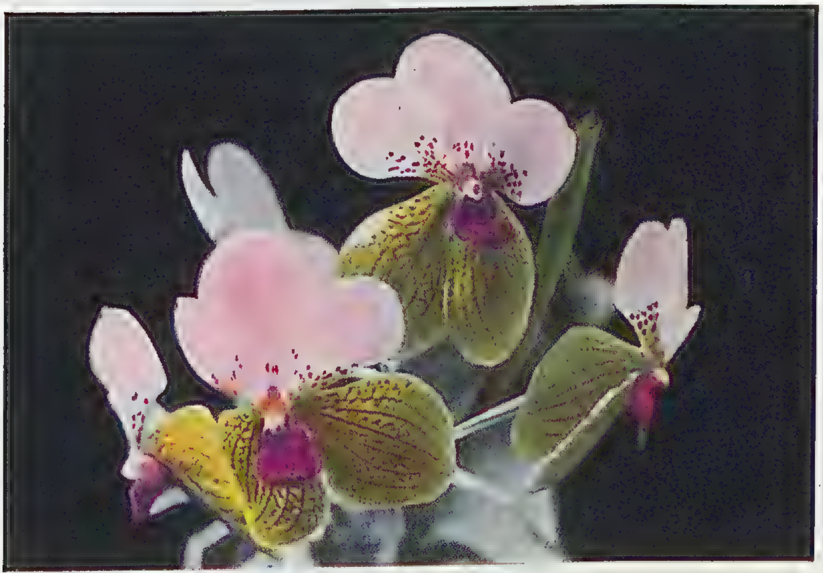
R. M. STEWART

● Approached by a long, tree-lined drive, the beautiful home of Judge Markell, the President of the Orchid Society of New South Wales, is situated at Warrawee, on the heights of the North Shore Line.

Our ring upon the front door-bell elicits the information that the Judge is in one of his two large glass houses, and we accordingly proceed there—being greeted on the way by the cockatoo in the pepper tree and the very plump and friendly dog.

Our first tour of inspection is of the smaller house—the cool house in which most of the flowering plants are placed—and what a glorious show of bloom is displayed. As we enter, our first impression is of a huge plant of *Dendrobium nobile*, of a particularly fine, large variety and carrying goodness knows how many blossoms. This plant is hung immediately in front of the door, and another, equally large but having flowers darker in colour, is placed behind it, giving the impression of a huge mass of solid bloom. As we move round the aisle to the left of the plants massed in the centre, we see two very fine *Dendrobium* hybrids—*Dominianum*—with a pointed lip and of very dark colour, and *Artemis*, of a more delicate shade. Beyond these is hung *Cattleya Remy Chalet*—an attractive bloom in which pale pink merges to dark magenta and having yellow markings on the well-formed lip.

In a sunny corner are grouped the *Laelia anceps* of many varieties, and the colours most tastefully merged. We suspect the hand of Mrs. Markell, who shares her husband's enthusiasm for orchids, in this arrangement. The white form, *alba*, stands out, carrying five large, pure white blooms. The beautiful green *Cymbidium Hookerianum* (*grandiflorum*) with its yellow lip is our next halting place. The Judge tells us that the plant took many years to flower, but the wait was well worth while. *Odontoglossum Thyades* surprised us ,after having heard how hard these plants are supposed to be to grow. This one is the picture of health and carried a fine spray of pink and white flowers, the sepals and petals being attractively marked with purple. The bright yellow crest is a striking feature of the bloom. *Vanda Stangeana* is a quaint little chap. The plant carried six or more spikes, each bearing many of the smallish green and brown flowers. *Cattleya Titus* x *Brasso-cattleya Princess Patricia* is an attractive flower, being a pale mauve self with the excep-



VANDA SANDERIANA

A native of Mindanao in the Phillipines, this Vanda is surely one of the most beautiful of all orchids. The flowers are about five inches in diameter and ten or more are often carried on each scape

Plant grown by, and photo by courtesy of G. Bass.

tion of a white stain inside the frilled lip. *Brasso-laelio-cattleya Azora* is one of the largest *cattleya* blooms we have ever seen—fully 8in. x 7in. In colour it is lovely shade of deep cyclamen with a dark mauve lip, lined with yellow within. *Cattleya trianae* was nicely flowered, as was *Coelogyne cristata.*

At the far end of the house are grouped the "Slippers"—and though the main flush of these blooms is past, Judge Markell's display is an exceedingly fine one—far too numerous to describe in detail. An impression was of the many different varieties of *villosum*—ranging in colour from green to gold, and of *gigas*, var. *Cordean Hall*—a magnificent large flower of striking, dark colour. This plant carried two blooms on the one spike. With his *Cypripediums* the Judge had on display some superb blooms brought up from Melbourne by his friend, Mr. Alston, President of the Victorian Orchid Society. These had made our host very envious indeed, and they were certainly worthy of envy.

Among the orchids were grouped many well flowered Cyclamen, Primula and Anthuriums, which added materially to the magnificent display. The centre of the house was occupied by many huge plants of *Vandas tricolor* and *suavis*—plants some five feet in height and full of bloom, amongst which were grouped palms and crotons and several plants of Bowstring Hemp.

Leaving the cool house and entering the warm house, we are impressed by the "feel" we encounter. We who grow orchids, instinctively know as we enter a house that the conditions within it are ideal for orchid culture, and Judge Markell's house most definitely gives us that impression. The first vision we behold is a magnificent plant of *Dendrobium Findlayanum* in full flower, with its delicate blooms hanging down from the suspended basket in a most graceful manner. This plant is a particular favourite of the Judge, and it is well worthy of that distinction. Below *Findlayanum* are grouped a number of *Calanthe Veitchii*—very attractive with their pale sepals and petals and darker lip. *Coelogyne pandurata,* too is well in flower—dark brown and green in colour. Another plant of this species at the other end of the house is growing to perfection on a garden stake, packed round with fibre—rather an attractive way of growing it. We become aware of a delectable, vanilla-like perfume and trace this to a nice little plant of *Platyclinus glumaceum.* The tiny cream flowers were carried on many spikes and the perfume is delightful. In locating the *Platyclinus,* we came upon a small but healthy plant of one of the commercial *vanillas*—a plant seldom found in collections. Many *Oncidiums* were seen, throwing out their long flower spikes but not yet in bloom—particularly *papilio, incurvum* and *luridum.* A new *Vanda* hybrid, of name unknown, will soon be disclosing its identity by means of several massive spikes. This is one of the acquisitions from Java on the Judge's recent trip there. We particularly note some very fine baskets of *Cypripedium bellatulum*—some of the healthiest we have seen—and learned that the Judge advocates the growing of this somewhat difficult species in chunks of old mortar with very little other potting material. The plants are suspended in rustic baskets made out of ordinary gum tree branches. Two other "Slippers" in flower particularly called our attention—*Io grande* and a very fine *villosum* hybrid.

Arachnanthe Lowii, a large plant which last year carried two eight- or nine-foot spikes of striking red and yellow flowers, is doing even better this year and is making a nice new growth from the bottom as well. A great number of Judge Markell's plants are of huge dimensions—*Renanthera Imschootiana, Saccolabium giganteum, Laelia purpurata, Coelogynes Mooreana* and *asperata, Cattleya trianae* (both the type form and the white variety), *Dendrobium Devonianum,* many *Selenipediums,* not to mention the immense *Vandas—tricolor, suavis, Agnes Joaquim, Teres,* and the smaller ones, *Dearei, Sanderiana, Luzonica, coerulea, Boxalii,* and many others. The *Phalaenopsis* will soon be in full flower—all are making profuse spikes to that end. *Schilleriana, Sanderiana, Leucorhoda, amabilis* and *Stuartiana* are a few of the varieties. A number of large *Phaius* from Java, as well as *grandifolius,* are thriving and should bloom well shortly. *Dendrobium undulatum* is just coming into flower. We particularly noted the very small container in which this plant is growing, and from the way it is succeeding there is no doubt that it likes cramped quarters.

The Judge recently acquired a great assortment of *Dendrobium* hybrids, comprising most of the worth-while kinds. A few are in flower and give a taste of what will come when the plants become fully established.

The *Cattleya* species are in great force—*Bowringiana, trianae, Loddegesii, Luddemanniana, Skinneri, Mossiae, Schroderae* and *gigas* are all well represented, as are the *Laelias* of the warm growing varieties with *crispa, purpurata, superbiens and others.* The warm growing "Slippers" are represented by *Rothchildianum, Bellatulum,* *Curtisii*, *Maudiae magnificum* and others, and growing close to them are many *Selenipediums* such as *Schroderae*, *Sedenii*, *longifolium*, *grandiatratum* and *caudatum*. The *Dendrobiums* include *aggregatum*, *crassinode*, *Findlayanum*, *nobile*, *Jamesianum*, *infundibulum*, *aureum*, *Pierardii*, *chrysotoxum Farmerii*, *formosum*, *moschatum*, *fimbriatum*, and var. *occulatum*, and many others—all coming nicely into flower. The Northern Australian and New Guinea *Dendrobes* are also well represented—*phalaenopsis* and *superbiens* being in flower. At the far end of the house is a very large plant of *Nepenthes Masteriana*—one of the Pitcher Plants. It is about to be heavily pruned to curb its disposition to take possession of the house. Near it are two large fish tanks filled with tropical fish. Many fine Adiantumsare displayed between the orchids on the central staging — *gloriosum roseum*, *Gloire de Mordrecht*, *Farleyense*, *Cardiachlena* and *macrophyllum*, whilst upon the benches are growing in profusion many such plants as climbing *taro*, *Lycopodium*, *Episcia* and the green and red *Fittonias*. Several *Pandanus*, with their thorny edged leaves add to the appearance of the house, as does *Aralia Veitchii*, with its narrow, twisted leaves. *Sansceza* thrives under the benches. Other foliage plants used to relieve the somewhat uninteresting appearance of orchid plants —to others than orchid growers—are *Crotons* in many beautiful shades, and *Anthuriums*, both large and small. One very large plant bears huge pale pink flowers—very beautiful indeed.

VANDA TRICOLOUR

A beautiful spray of this well-known species. The sepals and petals are pale yellow, spotted with brown and red. The lip is purple. It is a native of Java.

Grown and photographed by T. C. Harveyson.

Judge Markell does not confine himself to grown plants. We were interested in his experiments in seed raising. *Cattleyas* are germinating well in the flasks under the asymbiotic culture, whilst *Epidendrum*, *cattleya* and *Coelogyne* seem to be doing equally well on damp towelling placed over finely chopped potting mixture.

Having left the second house, we have still by no means completed our inspection of this large collection. We are escorted to a large*Deaodah* tree beneath which are many *Odontoglossums*, all growing remarkably well. There are also a few *Maxillarias*, whilst the tree itself is a mass of native species — *falcorostrum*, *speciosum*, *teretifolium,aemulum,tetragonum*, *Kingianum*, *delicatum*, *linguaeforme*, *gracilicaule*, *gracillimum* and many others. Near this tree, surrounding a fish-pond are the *Cymbidiums*, growing in ornamental containers. Many of the hybrids are making spikes and a fine show of *Lowianum* and of *Lowio-eburneum* is certain.

From here, we pass to the inspection of another tree, likewise loaded with *speciosum* and *falcorostrum* and with the addition of quantities of *Wardianum*. The Judge had no luck whatever with this species indoors,but it is growing profusely out of doors.

(*Continued on page 26*)

Visit of Mr. E. W. Cooper

Mr. E. W. Cooper, of Sanders & Co. Ltd., St. Albans, England, the well-known Orchid firm, who visited Australia early this year, attended by invitation the January and February meetings of the Orchid Society of New South Wales. The various matters discussed at the meetings have been divided into groups and are set out in the form of question and answer. Mr. Cooper here deals with the subject of:—

WATERING

● *Question.*—A large number of pots appearing in photographs of glass houses in England are shown in beds about three feet wide. How are they watered?

Answer.—In the case of a nursery, wholesale methods are adopted rather than the detailed methods usual in a private place where the collection would be smaller. In the nursery, labour is a big item. Take *Cypripediums* or *Cattleyas.* They get to a certain stage and are potted off say, at 2, 3 or 4 years old. Those plants are placed on inverted pots that do not touch—there should be a space between each—but they are placed in batches ,that is to say, each cross by itself. Each plant is naturally in more or less the same condition. When the roots are active, the watering is done with a rose can. They are given a good soaking, but that is done on the morning of a fairly fine day. They are left for say, 2, 3, or 4 weeks, according to circumstances, and then given another good soaking. A seedling orchid, of course, requires more attention than a full grown plant, because, whilst there may be just as much moisture about, the matured plants do not dry up as quickly as the seedlings.

There is another point I must emphasise. Over watering is one of the greatest evils inflicted on orchids. If the house be kept in the right state of humidity and aired and damped properly, frequent watering is unnecessary. Moreover, if the plant should get dry, or be without water when needed, it is not injured to the extent that an over watered plant would be.

Odontoglossums and *Miltonias* are simply watered with a rose can. As the plants get bigger, they are placed out and if the grower be expert in his work, he begins to know when a certain plant wants water without looking at it.

Question.—I understand the hosepipe is used for watering purposes. Might that not induce excessive damp?

Answer.—All our plants are kept in as small a pot as possible. There is a tendency here to put them into big pots. Just why I do not know. A plant in a five-inch pot will want water, we will assume, three times each week. That means that each time that plant is watered the air which is present in the Osmunda or other fibre is forced out by the watering and immediately renewed, from which the plant derives much benefit. If in a very large pot, there would be a larger amount of compost which would require watering only twice each week. Consequently a large pot would not require watering as much as a small pot, because the former plant would not need the water. Then the air in the large pot must eventually become somewhat foul and the compost tend to become sour.

I noticed many *Cattleyas* growing in baskets here and I like the method. The baskets are of wood, and the roots can get to the air when they want it. Epiphytic orchids must extend their roots into the atmosphere and get the benefit of the air. I have seen *Cattleyas* with a huge mass of aerial roots. They certainly do not give the plant any food, but then that plant is quite warm. When, therefore, an orchid has roots well out into the atmosphere, and the atmosphere is moist, there is no need for the careful watering that is frequently indulged in.

Question.—You will realise that there is a very great diversity of opinion as to the watering of *Cattleyas.* I keep mine extremely dry, as far as the pots and plants are concerned, although the air is kept moist. My plants frequently get no water for five months. It does not seem to harm them.

Answer.—We do water *Cattleyas* individually, but, whilst *Cattleyas* and most epiphytal orchids may get dry without harm, remember Nature can always be assisted by giving a plant a good soaking when it wants it, but when you have the time and get to know your plants, you can water any particular plant when it wants it, and that plant will respond better than if you were to leave the watering until to-morrow. When they are growing, *Cattleyas* should generally be watered once a week or fortnight. It all depends on the conditions or the humidity of the house. In winter it is very different. If a *Cattleya* is quite dormant—and some of these species rest for three or four months—it could go the whole winter without water . In England we cannot do that. If we could get the house at the right temperature and humidity, the plants could go from October to March with-

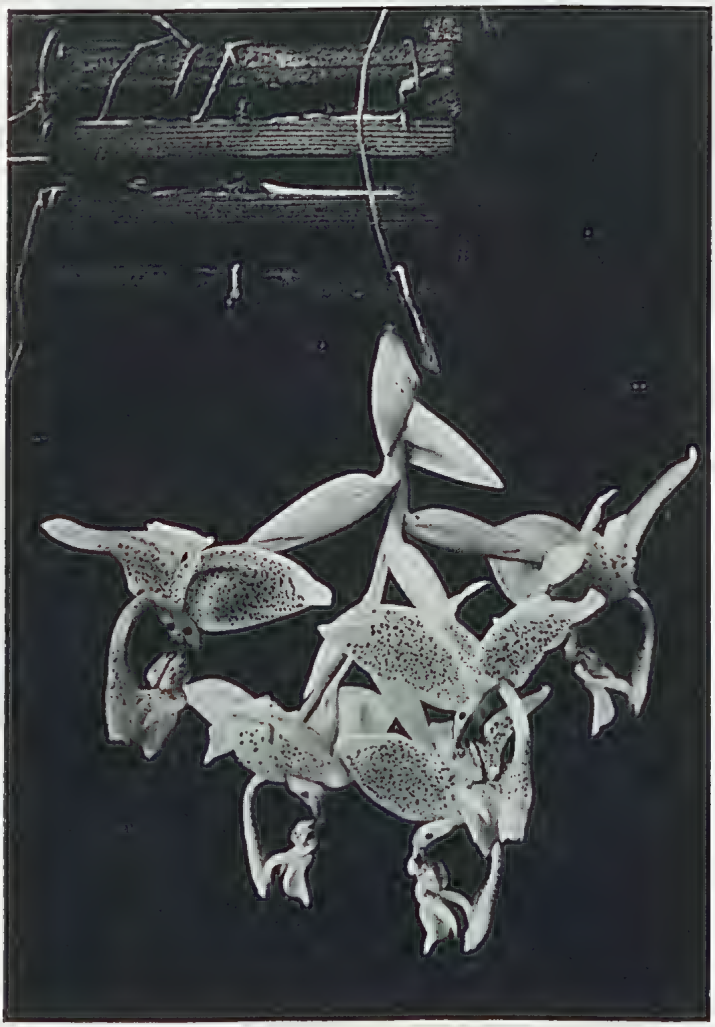
(*Continued on page* 24)

Stanhopeas

G. HERMON SLADE, *Manly*, N.S.W.

● Of all the orchids commonly grown by amateurs, perhaps there are none that possess more grotesque or massive flowers than those to be found in the genus *Stanhopea*. The whole plant is peculiar and distinctly different from almost all other plants, with its large, broad plaited leaves tapering into a fine stalk on a compact pseudo-bulb about 1 inch in diameter; and from these spring more numerous roots than generally in other orchids.

But perhaps the most remarkable aspect of this family is the method of flowering, and the flowers themselves. They produce their huge, heavy blooms straight through the bottom of the basket in which the plant is grown, and hang in a pendulous position beneath the leaves, pseudo-bulbs and roots. To facilitate flowering, the plant must be placed in a shallow basket free from any crocks or other hard matter commonly used as drainage, so that the flower spikes may readily find their way through.



STANHOPEA FRANKENSTEINIANA

This picture illustrates the peculiarity of this genus of flowering downwards from the bottom of the container, an uncommon species.

Photographed and grown by W. Schmidt.

There is only one horticultural drawback to *Stanhopeas*, for their flowers, although of thick and heavy texture, are of very short duration;

each one lasts in perfection for only three or four days. However, to compensate this, the plant generally produces a succession of blooms, and a well-grown large specimen will often be seen flowering practically continuously for a month or six weeks.

The flower itself is extremely peculiar, and words could never describe it accurately. The flowering plant always excites attention—they have membranaceous brightly coloured sepals and petals, but the fleshy lip is the most outstanding feature of the flower. From the base of the column springs a more or less hollow portion called the *hypochyl*, and from this is developed quite a distinct body forming the *mesochyl*, which often tapers into two horns; and further, upon the *mesochyl* is the *epichyl*, which is somewhat movable. The flowers are large and waxy and have a very powerful perfume.

The plants are exceptionally easy to grow, and will even stand bush house treatment, but an unheated glass house suits them perfectly. Compared with other orchids, they increase at a very fast rate, and it does not take long to form a very fine specimen from quite a small beginning. They are distinctly attractive even when not in flower.

The best known species is *tigrina* (orange and purple), an excellent photo of which is to be seen in the first issue. Other well known species are *Wardii*, with gold and purple flowers; *insignis*, greenish-yellow and purple; *bucephalus*, orange and blood red; and a remarkably variant species, *ecornuta*, which possesses no horns on the mesochyl. The flower is pure light orange-yellow. One or two at least, will add interest to even the smallest collection.

Aeridovanda Mundyi

● There is a very pretty little plant which has been produced by crossing *Aerides vandarum* with *Vanda teres*. *Aerides vandarum* happens to be one of the few terete leafed *Aerides*, and forms its relatively large white flowers about September. It is the largest flowering Aerides and grows in quite a cool climate.

Vanda teres is well known, and is grown often as a garden plant in the tropics, forming quite appreciable hedges. It has large rosy flowers.

The hybrid promises to be quite an interesting garden plant in Sydney, for although *Vanda teres* will not succeed out of doors in this climate, the hybrid seems to flourish under these conditions remarkably well; probably due to the influence of the cool loving *Aerides*.

The flowers are delicately shaped and tinted, the ground colour being pure white with a faint touch of pink on the petals. The lips is a blush pink with a few orange lines. The flowers are, to the present, produced three or four together on a spike, and are of very long duration; they have the advantage, moreover, of being very beautifully perfumed, smelling almost identical with a well known organic chemical, hydroxycitronellal. In respect to the odour, it is like the *Aerides*, although at first sight the general appearance of the flower is considerably more like the *Vanda* than the male parent.

A beautiful plant which will grow easily in a warm, sandy spot, should commend itself to every flower lover; and this charming hybrid promises to become a great favourite.

This is another of the rare and interesting crossings emanating from Gatton Park, the home of Sir Jeremiah Colman.

How to Hybridise—*Continued from page 15*

The pollen masses are treacle like, and in this respect are totally dissimilar from the cheese-like appearance of the pollen of most other orchids. Having applied the pollen to the rounded stigmatic surface of the plant to bear the seeds, there is nothing further to be done except perhaps to make a note of the plants used in the cross and the date. Whether a seed pod will form or the contrary be the case, is usually not discernable for at least a fortnight, or even longer. If our experiment has been a success, the flower in due course will wither and fall from the plant, leaving a well defined but small elongated ovary or seed vessel. This will gradually increase in size and usually grows about 2 in. long and rarely more than $\frac{1}{4}$ in. wide, tapering to a point at the top. The seed pod never attains the size of the seed pod of a *Cattleya* or a *Cymbidium*, but nevertheless usually contains an almost incredible number of minute seeds. The seed pod generally takes from six to twelve months to ripen, and should be covered with a cellophane or other suitable bag as soon as the pod begins to change to a brown colour, otherwise the time will arrive when the pod is fully ripened when it will burst and scatter the seed, which by its very nature will be unrecoverable.

EDITOR'S NOTE.—Having explained in this and our last issue the method of crossing *Cyprepediums* and *Cattleyas*, Mr. Hawley in our next issue will describe a method of growing the seeds.

The Perfume of AERIDOVANDA MUN

This slip has been impregnated with Hydroxycitrone
which is very similar to this Orchid's perfume.

Building Up a Collection

J. MURRAY COX, *Brisbane, Queensland*

EDITOR'S NOTE.—*We have taken the liberty of altering Mr. Cox's article very slightly, to make it applicable to N.S.W. and Victorian as well as to Queensland conditions.*

● That proverbial person, the Man in the Street, when the matter of Orchids and Orchid growing comes to his attention, generally shrugs his shoulders and says "Orchids? They're wonderful all right—but you've got to be a millionaire to go in for them."

We, who in our small or great way, have experimented in the matter, know that the practice of the cult can provide a hobby which actually entails much less outlay than many others, and we know, too, that the person of small means can gradually build up quite an excellent collection of beautiful plants by means of a very small expenditure.

It is only some couple of years or so ago that I first became interested in the cuture of Orchids, and I suppose that my interest was aroused in much the same way as that of many other growers. I was at an auction sale and put in a bid, without much caring whether I got the goods or not, for a couple of large specimens of *Dendrobium speciosum*. At the time all I knew about them was that they were "Orchids," and I knew they bore long, graceful sprays of creamy coloured blossoms. From this humble beginning my collection (although still embryonic) has now grown to some hundreds of plants of many types and species.

To the new grower, I would say—"Start on some of our local species first"—*Dendrobiums speciosum, gracilicaule* and *aemulum* are interesting, and are quite beautiful. Being easily acquired, and quite inexpensive, they make excellent material for first experiments in potting and culture.

The next step will be to acquire a few other local varieties, still sticking to *Dendrobiums*, and obtaining, say, *Dendrobiums Kingianum, falcorostrum* and *gracillimum*. These require, perhaps, a little more skilful attention than the others.

Probably by this time the grower will have been bitten by the Orchid disease, and his temperature will start to rise. "Those *Dendrobiums* are the thing!" he will say to himself. "I'll try a few imported ones." If he is wise, he will purchase, at any rate for a start, from a reliable Australian dealer, say, half-a-dozen of the hardier exotic *Dendrobiums*—such as *Dalhousianum, nobile, Pierardii, densiflorum, chrysotoxum* and *thyrsiflorum*. These grow quite easily in our climate, are all beautiful and well worth cultivating. It is in making this start at growing exotic Orchids that so many newcomers to the cult make their first mistake. They see advertised an offer of a parcel of assorted Orchids for a remarkably low sum. Their hearts thrill with anticipation, and they jump at the chance.

Three months elapse, during which time they have grown sick with deferred hopes. Then one day they learn that a parcel or a case has arrived. Eagerly they pay their bill for freight and charges, and duly take the long expected parcel home, and with trembling hands open it up. A gasp of dismay—nothing but a number of bundles of seemingly lifeless dried out sticks and plants. The thought rushes to their mind that they have been "stung"—of course, it is not so bad as that. Meeting an Orchid-growing acquaintance next day, they tell their tale of woe. They are soon told that the plants will probably re-establish themselves after potting—and usually the bulk of the shipment does.

The point I wish to make here is that the new culturist actually saved very little, if any, money on his mixed lot compared with what the same plants would have cost him if he had bought them a few at a time from a reputable local dealer. In the latter case, he would have received plants that were at least partly established, certainly those that had survived the journey in a reasonably satisfactory manner. Again, it is much easier to handle the job of potting when you have only, say, half-a-dozen plants to attend to, than when you are faced with a couple of score of hungry-looking Orchids. Some experience is essential before the new grower begins to make his own importations.

Another advantage of the small and frequent purchase over bulk buying for the beginner, to my mind, is that he gets a long succession of thrills with each new addition to his collection, whereas, when he buys a whole lot at once his thrill at the new arrivals is mitigated by the task ahead of him in acclimatising and reviving the newcomers.

Again, the extra care that must be expended on new plants until they take over for themselves the job of living, may become irksome if it has to be extended to a large number of plants at once.

My advice to the beginner then, is, "hasten slowly," buy small lots often, watch carefully the development of the newcomers, and endeavour with each successive plant you pot to improve your technique.

The *Dendrobiums* are certainly the best type for the new culturist to start on, but no one worthy of the name of an Orchid grower will wish to confine his efforts to one family of the order. Having obtained a few *Dendrobiums,* the grower will then make up his mind as to what type he wishes to try next. I think that he is best advised to try a few of the hardier *Cymbidium* species. *Lowianum, giganteum, eburneum,* and *grandiflorum* are inexpensive and hardy and are worth having.

I do not recommend the beginner to go in for expensive varieties of any sort for a start. Each type of Orchid has its own set of problems which have to be studied and overcome, and if the new grower confines his prentice hand to the common, hardy types which are easily naturalised, his funeral expenses will be much lower.

After the *Cymbidiums,* I would suggest a few *Cypripediums.* The following are hardy and seem to do well under the conditions generally prevailing in a new grower's bush house—*villosum, hirsutissimum, insigne, Charlesworthii* and *Spicerianum.*

After the *Cypripediums,* a *Vanda* or so may be added—say, *Vanda coerulea* and *Vanda Amesiana,* both of which do well here.

By the time the plants I have enumerated have been acquired and established, the grower will have quite a representative little collection which has cost him but a few pounds, and yet will give him, in due time, a distinctive range of blossoms.

By this time also he will have ceased to be a tyro (if one ever does) and will probably decide for himself in the further building up of his collection. He may decide to commence to specialise in one or more particular types of Orchids, such as *Vandas, Cypripediums, Cymbidiums* or *Cattleyas,* or he may prefer to go on increasing the number of varieties in a general way. Which ever path he chooses the advice I gave a little while ago to "hasten slowly" still applies.

(To be continued)

Visit of Mr. E. W. Cooper

(Continued from page 20)

out a drink, but there would not be just that right temperature and the moisture rising from the ground to keep the plants happy. For instance, certain species require to be placed on the shelf until the bulbs become heavily ribbed. Unless that be done, the plant will not flower.

The whole question of resting an orchid becomes an individual study. Every plant wants a sleep, and if you can get your orchids to complete their growth before the beginning of the winter, then let them have a complete rest. That, however, is not always possible. With hybrids, however, on account of their mixed parentage, nothing is uniform. Some you may be able to rest three months, others only a few weeks. There is individuality in all plants.

A Useful Accessory

A useful accessory for the glass house is the draining board. Using the two thick ends of a large fruit case, cut one corner off each so that the saw cuts measure 12 inches. The remainders should form equal rectangular pieces of wood, the shortest sides being about three inches and the angles between these shortest sides and the newly cut sides being about 45 degrees.

To the newly cut sides nail a piece of timber, say, 3 feet in length by 12 inches wide and ½ inch thick. If made longer than 3 feet, they are cumbersome, and it is better to make several if necessary. Plane off the lower edge so that it becomes flush with the two shortest sides of the end pieces, and to the planed edge nail a piece of lattice timber ½ inch thick, 3 feet long and 1 inch wide. This makes a ridge at the lower edge of the board.

Then brace the two bottom corners by connecting them with 3-ft. strips of lattice timber, nailed in place, and the job is done—though a coat of paint is desirable to help preserve the wood.

This draining board is extremely useful for use with those orchid plants which resent water in the tops of their growths, such as *Vandas, Zygopetalums,* budding *Cypripediums* and many more. After spraying, the pots are placed on their sides on the board, plant downwards, and the water soon drains away from the growth.

Orchid Culture in North Queensland

G. BASS, *Townsville, Q.*

● For growing *Cattleyas* and their Hybrids, North Queensland is the ideal situation. Good rains during the first few months of the year and heavy dews during the colder months, with an absence of frost, make *Cattleyas* feel quite at home, and, to use an expression, "they grow like weeds." I have over two hundred in my collection, and as far as I remember, have only lost one plant, and that a back cutting which was not properly established when I received it.

Most of my plants are now making splendid root growth, and look in perfect health. Two species are particularly large specimens. A fine *Labiata*, 3ft. 6in. by 3ft. wide, with 80 bulbs and 21 new leads, had 55 flowers a few months ago. I expect 70 or 80 flowers this time. It is a glorious sight when in bloom, and as you know, lasts a long time. No. 2 is a *Skinneri*, with 156 bulbs. This is a picture when in flower, but unfortunately does not last for more than about two weeks. Among the hybrids *Suavior*, *Acquinae*, *Woden*, and two un-named yellows are my favourites.

BRASSOCATTLEYA CLIFTONVILLE

This beautiful bloom is the result of crossing Brassocattleya Cliftonii with Cattleya Tityus
Photographed and grown by T. C. Harveyson.

Containers.—All plants received during the last two years have been "potted" in baskets made from old tree-fern stems. This, from my experience, is the outstanding material for orchid baskets. It is loose enough in many cases to allow the roots to go right through the stem, lasts indefinitely, does not get mouldy or hold excess moisture. Some of my Brisbane friends are giving it a try out, and I am confident will be elated with their success.

Potting Mixture.—Charcoal and bird-nest fern peat. The latter is very fibrous and lasts a long time. Sphagnum Moss soon dies and gets sour.

Situation.—An easterly aspect, where plants get the full morning sun until nearly eleven a.m. during the summer. Laths spaced 1½ inches apart afford protection during midday and afternoon. All plants, where possible, are placed with the new eyes facing toward the east. I find this makes firmer and straighter growths, and does away with distortion.

My benches are made from 2 x 1½ inch hardwood on galvanised iron pipe supports. Under the benches is a luxuriant growth of Adiantums and other ferns. These conserve the moisture and give the right atmosphere at all times.

Watering.—Most of the plants are well watered under and over early in the morning until about May. The early morning watering gives the sun an opportunity to dry out any excess moisture before nightfall. From May to August the plants get practically no water. This supplies the necessary rest. No hard and fast rule can be followed for resting, but I always stop watering *Cattleyas* as soon as the sheath is formed. No further moisture is given until the flowering period is over. A good soaking is then given with a short rest until the root action again commences.

Flowers.—Most imported plants require about two seasons to become acclimatised and flower, but after the first flowering, seldom miss.

Dendrobium superbiens and ***Goldeii*** are two varieties of which I have many specimen plants up to 3 feet high. These grow particularly well in full sunlight. There is hardly a month in the year when there is not a flower on one plant or another. I have had as many as 112 sprays out at one time. These have been viewed by many southern and overseas visitors.

Indian *Dendrobes, Angraecums, Oncidiums, Vandas, Aerides, Saccolabiums, Phalaenopsis, Phaius, Calanthes,* and *Peristeria* (*Elata*) all grow in abundance and flower in season.

Cymbidiums and Cypripediums do not do so well.

Diseases.—Volk and Arsenate of Lead used as sprays, and the latter mixed with bran as ground bait, keep the plants in perfect health. *Dendrobium* Beetles were troublesome at one time, but are seldom seen (I refer here to my own bush house only). Yesterday I heard from a visitor that the Cairns growers were finding these beetles a real pest.

Aids to Orchid Culture

P. A. GILBERT, *Lakemba, N.S.W.*

These very useful hints are in continuation of those which have appeared in the "Review" from its inception. Mr. Gilbert here deals with the subjects of Tie-Sticks, Sponging and Drainage.

Tie-Sticks

● As the collection increases, and the plants grow larger, the necessity of procuring an adequate supply of tie-sticks becomes a matter of urgency. That is especially so if the collection contains many tall kinds of *Dendrobes,* or free-growing *Cattleyas.* The bamboo stick is the most suitable for inserting in the flower pot, generally lasting a season or two, according to its thickness. If the grower has the time, the stick is made more attractive by the application of green non-poisonous paint, which also improves its lasting quality. The cheapest and surest way to ensure a regular supply of bamboo sticks is to grow one of the dwarf bamboos adaptable for the purpose, and procurable from any of the leading nurserymen. Any of the species requires a warm situation and moderate watering during the season of growth, which usually extends from September to April. It is preferable to allow the stalks to remain until the end of June to enable them to harden, when they can be cut at the ground and dried off. A fresh crop of stalks will make its appearance in the spring.

Sponging

Sponging leaves is a very desirable operation, particularly where *Cypripediums* and *Cattleyas* are concerned, as it not only keeps the leaves fresh in looks, but also disposes of dust and algae which make their appearance sooner or later. Further, sponging the under surfaces of leaves helps to keep the stomata or breathing holes free to assimiliate the air, in consequence of which more perfect photosynthesis takes place, while many a nest of thrips or scale is disturbed before it has time to establish itself in the collection. A safe and convenient way to carry out the operation is to lay the leaf on the palm of the left hand when cleaning the upper side, gently wiping in one direction only, from the base to the apex. When doing the under surface, let the palm of the hand rest on the upper surface of the leaf, pressing up and wiping simultaneously. Do *not* rub the leaf backwards and forwards, as it is likely to double up and crack when least expected.

Perfect Drainage

A very important aspect of orchid culture, which, during the potting season, can be made extra effective by enlarging the hole when a flower-pot is used. An old chisel, pricker, or other sharp tool made of steel answers the purpose, being softly hit with a hammer when applied to the edge of the hole, quickly increasing it to twice the size or larger as desired. Pots that have been soaking in water for some time are less likely to crack than pots operated on in a dry state. A considerable enlargement is a distinct advantage in growing the genera *Vanda, Aerides,* and the like.

An Inspection of the President's Collection

(*Continued from page* 19)

We leave "Kooyong" with many impressions, three particularly being of the large number of species when compared with the hybrids, the success in the culture of *Odontoglossums* out of doors, and the absolute health of the collection.

We look forward with keen anticipation to our next visit.

Rhytida Strangei

An Interesting Australian Snail

H. J. R. OVERALL, *Manly, N.S.W.*

● Strange though it may seem, this little snail protects our plants!

We often hear the expression, "Set a thief to catch a thief," and the writer applied this rule to setting a snail to catch a snail, with most satisfactory results.

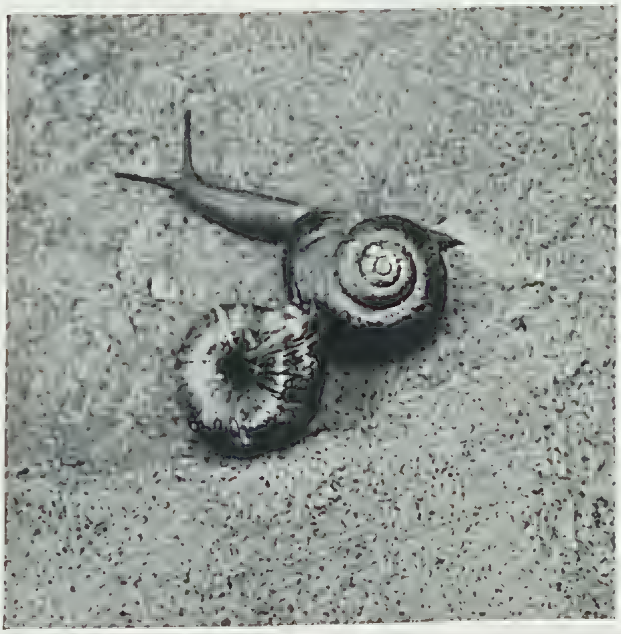
Apart from the several species of water snail common throughout Eastern Australia—of which *Bullinus and Limnosa* are the most prevalent, we have a number of land snails. The common snail, which causes so many disappointments in our gardens and glasshouses, is not a native of Australia, and in common with the rabbit, the "Prickly Pear," and many other pests, was imported either by accident, or design, from overseas.

Amongst the Australian snails are those of the genus *Rhytida* — several species of which have been recorded. These little chaps are carnivorous and even a succulent orchid bud or a tender seedling would not tempt them to partake of a vegetarian meal. The *Rhytida* is essentially a beast of prey. It hunts other snails, and probably insects as well, for food.

The habits of the genus *Rhytida* make it very hard to find even where it is known to exist. They are nocturnal and by dawn will have found cover under logs or stones, or, more often, will have dug down into loose, dry soil. During the winter months they hibernate, and so far as observation has enabled the writer to ascertain, the period of hibernation is of about ten weeks.

Throughout last summer and autumn it was quite a problem to find sufficient of the common pest snail about the garden to provide the food supply for two fully grown Rhytidas in captivity. So well had their fellows "cleaned up" among the orchids and ferns that only empty shells could be found—the garden raiders are attacked and eaten out, irrespective of their size.

I am advised by my friend, that eminent authority, Mr. Tom Iredale, of the Australian Museum, that the species most likely to be seen around Sydney and extending to well up the North Coast of New South Wales is probably *Rhytida Strangei.* Once seen, identification of *Rhytida* from other species is not difficult. Fully grown specimens of *Rhytida Strangei* rarely exceed 1 inch across the shell, which is flattened and of a brown colouring. A Queensland species is rather larger. On the under side of the shell a conical cavity will be seen, and this immediately distinguishes *Rhytida* from the garden pests, should there be any doubt.



RHYTIDA STRANGEI

The carnivorous snail which forms the subject of Mr. Overall's article. Natural size.

Photo by H. J. R. Overall.

The accompanying photograph is actual size, and shows one of the snails with its body extended, the other in its shell being turned over so that the conical cavity mentioned is clearly seen.

The Library

Members of the Orchid Society of New South Wales are again reminded that many books have not been returned for a considerable time. Make a special effort to bring them in to the next meeting.

Watering Orchids

The following article is an extract from "The American Orchid Society Bulletin" and is republished here on account of its great interest to local growers as well as those for whom the article was primarily written. It is followed by an extract from a letter kindly written for us by the Metropolitan Water Sewerage and Drainage Board on the subject of the purity of our city water and its suitability for use upon orchids.

● Among the details of orchid culture, the problem of watering is by far the most delicate and difficult. We will suppose, for the present, that the plants under consideration have been repotted some time before in appropriate compost. The cultivation in baskets or on logs has after all been almost entirely abandoned, except for a few rare species whose flowers hang in clusters under the plant.

The watering will be done with rain water, caught in tanks, and with no other. This point should be especially noted, as it is of capital importance for the prosperity of the orchids. If you run out of rain water, spring water contains no calcareous salt—that is, if it is pure water. It would be better not to water at all than to use city water. The water of most city systems is calcareous, chlorinated, or both. Men can drink such water without any apparent ill-effects, but it kills orchids quickly.

Likewise, cold water is hard on them; so you must avoid watering when the water in the tanks is cold as a result of heavy rains or melting snow. You will have to wait until the water reaches the temperature of the hot house before watering. To avoid this inconvenience, you can warm the water of the tank by running a hot-water pipe through it. Water with a watering can which has a long spout and a small sprinkler. The frequency of waterings and the quantity of water must be determined by a consideration of the various factors involved.

Watering depends upon the Natural Requirements of the Orchids

Orchids, whether they be epiphytes or terrestrials, whether their stems form pseudo-bulbs, or whether they be simply woody, naturally need a period of rest, which is more or less extended, more or less complete, depending upon the dry season of their native habitat. This period of rest is accompanied by complete cessation of growth.

It will be necessary to refrain from watering them throughout this period, or at most only at long intervals. There should be some large signs in the greenhouse, such as the following—

Do not water a plant when it is dormant.

Dormant plants whose bulbs wrinkle are more frequently plants with rotten roots than thirsty plants. To water them under these circumstances would be ruinous. You must not try to start growth by watering.

Growth must precede watering, and not *vice versa*.

Before beginning to water, you must wait until the plants come out of their lethargy. You will be able to tell when the plants begin to grow, for an eye will swell, new roots will be formed, and the old roots will begin to grow again.

When it comes to water consumption and methods of watering, orchids cannot be compared with ordinary plants; to a potted chrysanthemum, for instance. If you unpot a chrysanthemum and put it in the sun, it fades quickly and its roots dry up. No matter how much you water it, the roots which have been in contact with the air will not begin to grow again after a few days. They are dead. The air has killed them.

Orchids, on the contrary, especially the epiphytes, have roots which, thanks to their epidermis, can live indefinitely in the air and even in the sunshine without dying; the tissue, a sort of bark which surrounds them, protects them. Moreover, they often have reserves, the pseudo-bulbs, and thus they are able to live for months without a drop of water.

Orchids do not die of dryness, they do not die of thirst. If some of them die, it is almost always as a result of excessive, untimely waterings. Usually the watering pot is the enemy of the orchid. In case of doubt as to whether you should water, withhold it until later. It is always easy to wet the compost; it is impossible to remove excess water from it. After prolonged contact with compost which is too wet and which is not sufficiently supplied with air, the epidermis of the roots becomes water soaked and is easily attacked by the molds. Orchid roots do not like continued contact with water; they need air.

Watering depends upon the Variety

A terrestrial orchid, except for its short period of rest, needs a compost which is permanently slightly moist. This humidity can be maintained by frequent but sparing waterings. They are not aquatic plants. In their native state, the humus and the soil in which their roots grow is by no means a tightly packed compost. It is humid but well aerated.

The epiphytal orchids, in the native state, are indeed abundantly watered every day during the rainy season, but their roots are only in contact with wet bark; they are not enclosed in compost and shut in on all sides by a pot. When it stops raining, they dry off in a few hours. What they need, then, is alternating humidity and dryness. So, between waterings, allow the compost to become quite dry. These alternations of being wet and dry will keep the roots from rotting; and, of course, the health of a plant depends upon the health of the roots.

Watering depends upon the Rate of Growth

The faster a plant is growing, the more water it needs. You must, therefore, water in proportion to the rate of growth. When a plant is getting its growth, when the bulb is being formed, that is the period when the plant needs most water. At that period the waterings can be more frequent, but as soon as the bulb is well formed, you will diminish the watering and cease entirely when it reaches maturity.

If at this time a floral stem appears, you will continue to water slightly until it has flowered; otherwise, refrain from watering. Do not water thereafter until the floral stem appears, and even then water only moderately during the period of flowering. To continue watering a plant when its bulb is mature and before the floral stem appears, is to risk postponing the flowering and causing a new eye to grow from the base which may very well not bloom before winter.

Watering depends upon the Roots

If a plant has many roots which are in good condition and which are growing out through the compost in all directions, they will absorb all the water in the compost and it will dry very quickly. You can give more water to such a plant than to a less vigorous plant which has only one or two roots.

Watering depends upon the appearance of the Compost and on the Compost itself

You will be guided by the appearance of the compost to know whether a plant needs to be watered. Especially in the morning you can see whether the compost of a pot is humid. In the daytime the upper part of the compost dries out by evaporation, but if the lower part remains humid, during the night the upper part becomes damp again by capillary action.

You must be especially careful not to water if the compost is damp, for such compost absorbs water faster than dry compost. A compact, tightly packed compost which is not aerated absorbs more slowly, but once wet it stays so longer; a light airy soil dries out more quickly. Large pots need less frequent watering and less water in proportion than small ones.

Watering depends upon the Seasons

In winter you must water sparingly; the days are short, it is often rainy and cloudy, the possibility of fresh air is very limited, and the growth of the plants is very slow.

In summer, the length of the day, the sun, the heat, the possibility of almost constant fresh air, and the rapid growth, call for frequent and abundant watering.

Extract of Letter from the Metropolitan Metropolitan Water Sewerage & Drainage Board

In reply to your recent communication, I have to inform you that the main Sydney Water Supply is one of the softest in the world and also one of the very few supplies that are delivered without any form of treatment. The water contains very little calcareous matter and no free chlorine, and should therefore be quite suitable for use by orchid growers.

It is pointed out, however, that the Board is engaged in cement lining the mains at a number of points in the city and suburbs, and for some weeks following the completion of the lining of a main the water passing through it will be quite hard and will contain a considerable amount of lime. If this is detrimental to orchids, it might be advisable for members of your Society to make enquiries from the Board in this respect before using the water.

In the case of the supply to Sutherland and Cronulla, the water is chlorinated and might be unsuitable for the purpose in question.

An analysis of the Sydney water is attached.

Metropolitan Water Sewerage and Drainage Board
Average Composition of Sydney Water

Colour (U.S. Platinum Scale)	23.0
Chlorine, in Chlorides	2.41
Nitrogen in Free Ammonia	0.0004
„ „ Alb. „	0.0091
„ „ Nitrites	0.0
„ „ Nitrates	0.0027
Oxygen absorbed from Permanganate	0.0923
Iron	0.0331
Alkalinity as $CaCO_3$	1.0
Total Hardness	1.8
(Parts per 100,000)	
Saline Matter	
Calcium Carbonate	0.985
Magnesium „	0.229
„ Sulphate	0.562
„ Chloride	0.091
Sodium „	3.184
Potassium „	0.421
Iron, Alumina, Silica, Nitrates, Phosphates, Organic Matter, Combined Water	0.723
Total Solids	6.200

Cool House Culture

T. H. JAMES, *Longueville, N.S.W.*

● The three months, October, November and December, and, for that matter, the three following months, being our Spring and Summer, orchids grown in a cool glass house or bush house require practically the same treatment as those grown in a house which has been heated during the winter, except that those grown in the bush house will require probably more watering, on account of the greater evaporation.

CYPRIPEDIUM HARRISIANUM SUPERBUM

A larger and more richly coloured form of this well-known hybrid. Deep red in flower toning, the plant has the added attraction of handsome mottled foliage, and often carries more than the "slipper's" usual one bloom on each stem.

Photo by courtesy of J. Bisset.

In the circumstances, I think that it would be of more general use if I recounted some of my experiences during the past winter.

The winter just ended has been colder than usual, not as to individual days, but generally. In past winters the temperature in my glass house was occasionally down as low as 33 degrees, but then that was followed by temperatures up towards the 50 degree line. This winter, however, the thermometer showed 39 to 41 degrees morning after morning for weeks at a time. My frame, however, was never below 47 degrees, and averaged about 50 degrees.

I have experimented with a number of plants to ascertain the amount of cold weather they could stand, the results being—*Vanda Luzonica, Vanda Roxburghii, Aerides odoratum,* all developed spotting of the leaves early in July and were then transferred to the frame. No further spotting occurred; in fact, new leaves started to extend almost at once.

Vanda tricolor was in the cold house up to the middle of July and showed no ill effects. It was, however, transferred to the frame as four flower spikes appeared. The transfer was by way of protection to the flowers, as I believed that the continuous cold then being experienced might have caused injury to the flowers. At any rate, with four flower spikes in view, I was taking no chances. This is the third winter this particular plant has passed through with me and its flowering has improved each year.

Vanda Sanderiana, which is stated to require very hot conditions, was placed in the frame before the winter started and did not suffer. I have not had this plant long enough to determine whether I can succeed with it.

Phalaenopsis Schilleriana, despite a bad attack of thrip and the ravages of slaters, which obtained a foothold during my absence on a holiday, does not appear to have been effected. It was placed in the frame about mid-July and has now flowered. This is its second winter. I do not think it would have thrived outside the frame.

Phalaenopsis amabilis, however, showed signs very early of suffering and was handed to a friend for the winter . A neighbour of mine has a glass house, not artificially heated, which is built against a northern and western wall of his home. He knows practically nothing about the growing of orchids, yet has flowered this species for three years now in spite of neglect through ignorance. The aspect of this house probably causes the retention of more heat than one built out in the open, hence his success.

Saccolabium Blumeii and *Rhyncostylis coelestis* both survived the winter but were not happy. The *Saccolabium* has bloomed for two years now, but goes into the frame along with the *Rhyncostylis* next winter.

Vanda teres and *Vanda Agnes Joaquim* have been in the cold house all the winter and have never stopped growing during the whole period. I have not flowered these yet, and they are to be placed right out in the open sunshine during the warm season, which may induce flowering.

Vanda Amesiana is, I understand, a natural cool house type. It is growing well with me and has just flowered.

As to *Cypripediums,* I have had some misfortunes. Up to about twelve months ago they were growing particularly well, but in a moment of weakness I gave several of the larger plants some liquid manure made from a commercial fertiliser, with disastrous results, practically the whole of the root system having been destroyed. They have since been repotted and now show signs of revival.

Some of our members have insisted that *Dendrobium Wardianum* requires heat. My plants have been grown under bush house treatment and are flowering well. Incidentally, I have a shack up in the mountains with an elevation of 2,500 feet. Last March I obtained a number of plants of this species and tacked them on to trees in positions sheltered from the winds and in partial shade. They have made new growths and are also making fresh roots and even opened a few flowers. The weather has been very cold there and, if at all susceptible, I think they would have suffered. How they will thrive is, of course, a matter for the future.

As to *Cattleyas,* those that had matured their growths before the winter started were left in the cool house right through. They look healthy and the new growths are well advanced. Unfortunately, quite a number of new plants were received late in the growing season and before their new growths had matured. They were placed in the frame, but naturally the growth did not develop to the extent that heat would have induced, but some are showing flower.

Our Terrestrial Orchids

PART IV.

A. G. HAMILTON, *Chatswood, N.S.W.*

With this article, Mr. Hamilton concludes his interesting series. Mr. Hamilton is in his eighty-fifth year, and has given much careful study to his subject of ground orchids. We regret that Mr. Hamilton has expressed a wish to conclude his notes, but trust to hear from him from time to time for many years to come.

Caleana

C. major, R. Br.—This is a rare plant here and its congener, *C. minor,* is absent. The flowers are rich brown and reversed. The labellum is sensitive. The brown color seems that it is attractive to flies. When a heavy fly alights on the labellum that organ turns over and with the fly on it closes the bucket shaped receptacle formed by the sepals and petals. In its struggles to escape from the imprisonment it is smeared with pollen and no doubt often causes self-pollination.

C. major flowers in November and December, and seems to enjoy the torrid heat of these months.

Acianthus

A. fornicatus, R. Br.—This is a very common plant. It flowers from April to September.

A. reniformis.—This is also a very common species and flowers from August to October.

Lyperanthus

L. suaveolens, R. Br. (sweet scented).—It has been objected that this species is inappropriately named, but I always found it very sweetly scented on a hot day. It is very local, mostly being found on the northern side of rocky hills. The flowering season is from September to November.

Eriochilus

E. cucullatus, Reich. F.—In experimenting with this plant I have repeatedly noticed the viscidity of the pollinia, so that when it is attempted to withdraw them from the anther a piece sometimes draws out into a glutinous thread, which on being stretched flies back and carries with it a piece of the pollen. This sometimes stretches the stigma, thus bringing about self-pollination. Common everywhere. Flowers from March to May.

Caladenia

C. clavigera, A. Cunn.—Rather rare. Its specific name comes from the club-shaped tips of the sepals and petals. Flowers September and October.

C. dilatata, R. Br.—One of the most attractive of the local members of the genus. Flowers from September to November.

C. arenaria, R. D. Fitz.—This plant is a good example of discontinuous distribution. It was first discovered by Mr. Fitzgerald at Yanko Creek (Riverina) but soon after I came across it in the Mudgee district. Flowers in October and November.

C. filamcutosa, R. Br.—Common on stony hill sides. It is very variable in colouration, the segments being from dark maroon, through cream to almost white. The children call it "spider," which name is also given to all the *caladenias.* (Mischievous boys tie the dark flowers to a horse hair and drop it on the necks of the girls.) Flowers in August and September.

C. cucullata, R. Br.—Collected at Guntawong, Goodamin and Coolah. It has a most abominable smell and on more than one occasion I have had a cloud of blowflies round me while carrying specimens. It is likely that pollination may be effected by these insects. Flowers in October.

C. Patersoni, R.Br.—Like *Diuris Alba* I have collected only one specimen of *C. Patersoni* and that is not the form usually recognised as such. The plant discovered by me is identical with that figured by Fitzgerald in Vol. 1, part (3). The type was collected in Tasmania. The varieties (if they are varieties) collected in other States, have longer sepals and petals and are mostly cream coloured, while the type has shorter sepals and petals and the color is mostly red.

Fitzgerald was convinced that the plant he figured was Brown's type and I agree with him.

Calanedia carnea, R. Br.—This is a very common species and very gay in its colouration. Flowers from the middle of August to October.

Caladenia alba, R.Br.—Collected in Cooyal by Dr. Wools.

Caladenia coerulea, R. Br.—Common. Flowers from August to October.

Chiloglottis

C. formicifera, R. Br.—Collected only at Cooyal in September. Grows best in shady places. The species name alludes to a growth on the labellum which resembles an ant.

C. trapeziformis, R. Br.—Found at Guntawang, Cooyal, and Mullamuddy. Flowers in September and October.

Glossodia

G. major, R. Br.—Common all over the district and known to the children as "Ladies' Fingers." I have seen two coloured varieties, white and pink. Flowers from August to October. Its congener, *G. minor,* does not occur in the Mudgee district.

Many of the species, especially those growing in open flat country are becoming scarce and will, I fear, sooner or later become extinct. This may be attributed to many causes, the chief being the struggle between introduced and indigenous plants, the gradual change in many respects produced by ringbarking and clearing, and the destruction of plants by sheep, cattle, etc.

Potting Dendrobiums

Being the Views of Two Members of the Queensland Orchid Society

By T. C. Harveyson

● There are many ways of potting *Dendrobiums.* One may choose pots of various sizes, shapes and makes, baskets or rafts, or other receptacles. The plants do well on living trees or even portions of logs. Undoubtedly one of the best ways of growing *Dendrobes* is upon live trees, particularly frangipanni, whose soft bark allows the Orchid roots to obtain a firm hold. Against this, of course, is the difficulty of having sufficient trees to work on, and this may be the reason why nowadays Orchids in general are treated as pot plants the world over by growers who possess collections of any size. *Dendrobes* probably do as well in baskets as in earthen pots, but the former are rather unwieldly and present more difficulty when the time arrives for repotting. A pot can easily be broken when necessary and the plant removed to a larger one without doing much harm to it.

No matter what method or receptacle is used, the first and foremost essential is perfect drainage. I prefer, when using pots, to place the drainage crocks vertically in the base of it. All materials should be washed thoroughly clean before the job is commenced, for to use a clean pot and some part of the potting compost infected with disease is asking for trouble. The compost usually consists of good fibrous peat or todea or osmunda fibre. The difficulty of obtaining really good peat around Brisbane is getting rather a problem, and about 80 per cent. of the peat sold is usually waste. For this reason a good many of us are using osmunda fibre, which although rather more difficult to pack firmly is less liable to turn sour. If the fibre is soaked a few minutes in boiling water, it will lessen the risk of disease and make it soft and pliable.

I think the main factor in potting is to pot firmly, and to assist in this it is advisable to wedge a hardwood stick in the crocks at the base of the pot. This is driven in firmly, and the pot is then filled to within about ¾ of the way to the top with crocks and charcoal. A pad of fibre of suitable thickness is then placed on top of this, then the plant is placed in position and tied firmly to the stick in a couple of places. The roots are covered with pieces of fibre and carefully pressed down with a potting rod or an old pair of scissors, and the top layer is finally trimmed off neatly.

By W. McK. Robertson

● Our Society has been formed primarily to assist each other with advice founded on our experiences, and it is with pleasure I give an account of my successes, and with anticipation of helpful suggestions, mention a couple of my failures.

I will deal with four *Dendrobiums,* with which, I think, I may claim to be successful. Two of them are quite common, but to my mind, beautiful, and the other two are Indian Orchids. The first two are our Queensland natives, *D. phalaenopsis* and *D. superbiens.* I have had these two Orchids grow very nicely with me, and under rather diverse conditions. It would seem that both these species are fairly adaptable, as I have them growing on blocks of tree fern facing the north, where they get the full glare of the sun all day, and I also have them growing in the glass house in pots. The compost in the pots is the usual one used, I think, by most members of the Society, namely, three-fourths crocks and charcoal with a lining of osmunda fibre upon which the plant rests. The spaces are then packed with osmunda and topped with sphagnum. I should say also that the plants are fixed very firmly. I believe that loose plants, which wobble about, are given a very severe handicap.

I must confess that the specimens growing in the glass house are making very much bigger stems, easily twice the size of those growing in the sun, but the ones growing in the sun appear to me to be sturdier plants. Their roots are all over the tree fern, and I think they would stand a set-back much more easily than the ones grown under glass. They are left where they are all the year round, and the cold of the winter months does not appear to affect them. It should however, be noted that, where I live at New Farm, we are free from frosts. I mention here that in the summer they are watered daily with our ordinary tap water, and in the winter about once a week.

The two Indian species are *D. thyrsiflorum* and *D. chrysotoxum.* They are potted as before mentioned, and are housed in the bush house. My bush house faces north, and the sun's heat is fairly evenly distributed all day throughout the house. The west and south are enclosed with glass, leaving the north and east open. They are watered in a similar fashion to the two native species. All four species flower very nicely every year, and succeeding growths are always as big, if not bigger, than the previous year's output. Like all of us, I try to keep a moist atmosphere in the glass house and bush house, and I here give my firm opinion that the compost matters comparatively little to the average *Dendrobium* and probably all epyphytal Orchids, provided the atmosphere conditions are correct. It may possibly be that the different composts and methods of potting recommended by experts tend to give the atmospheric conditions required. At any rate, I have seen *Dendrobiums* growing at various places by people who have no particular interest in them, under all sorts of conditions, many of them with earth amongst their roots. In one case, a lady I know informed me she threw her tea leaf slops over an Orchid. Most of them growing under these conditions were years old, and I concluded that the atmospheric conditions were about suitable, and that the plant otherwise was not worrying about its habitat. Probably others with similar conditions as to treatment, but in the wrong atmospheric conditions, had died off long ago.

In conclusion, I will just mention two *Dendrobiums* with which I can do no good, at any rate, with the specimens I possess. Possibly poor plants to start off with, but *D. Formosum Giganteum* and *D. Findlayanum* have been failures. I have only just managed to keep them alive.

The "Australian Orchid Review"

All communications regarding the *Review,* relating to supplies for sale, subscriptions generally, and advertising rates, etc., should be addressed to G. Hermon Slade, Hon. Editor, Orchid Society of New South Wales, Box 1540 DD, G.P.O., Sydney, New South Wales.

ORCHIDS

We hold an immense stock of FINE HEALTHY ORCHIDS
A Wonderful Selection of

HYBRID CATTLEYAS
LAELIO-CATTLEYAS
CYPRIPEDIUMS
ODONTOGLOSSUMS
MILTONIAS

Plants of flowering size. Over 35 years' experience in export packing to Australia
Prices very reasonable. Write for our CATALOGUE without obligation.

MANSELL & HATCHER
Limited
Dept AOR. RAWDON, LEEDS, England

The
Orchid Review

- Founded in 1893, by the late R. A. Rolfe, of Kew. The only Journal dealing exclusively with Orchid Lore, featuring articles on the History, Cultivation, Hybridization, and all matters of interest to the Connoisseur, Amateur, and Trader.
- Exhibition Reports and Registration Records of new Hybrids accurately kept and published.
- Price, One Shilling and Sixpence, monthly, postage free. Back volumes and complete sets, bound or unbound, can be supplied from

ORCHID REVIEW LTD.
5 TAVISTOCK ST., COVENT GARDEN
LONDON, W.C.2

Splendid stock of

CATTLEYA, CYMBIDIUM,

CYPRIPEDIUM, ODONTOGLOSSUM

and PHALÆNOPSIS hybrids.

Over 3 acres of newly-built houses

devoted to Orchids

FLANDRIA

BRUGES (Belgium)

SANDERS
St. ALBANS
ORCHID GROWERS, HERTS., ENGLAND
OVER 50 YEARS' EXPERIENCE
AT YOUR SERVICE

TO SUIT ALL HOUSES **ORCHIDS** TO SUIT ALL CLIMES

WRITE FOR
Special Offers—Latest Price Lists
and
"Cultivation of Orchids"

An illustrated and interesting Book free on application to Members of the Orchid Society of New South Wales

●

SANDERS ORCHID GUIDE
A complete work on all best known species
1927 EDITION—POST FREE—21/-

ORCHIDS

Cymbidiums — Cattleyas — Dendrobiums — Cypripediums, &c.

You get Good Plants at Good Prices from

Armstrong & Brown

Tunbridge Wells, England

Write for Price Lists. All orders received shall have our very best attention in packing and selection of the plants.

You will obtain bigger and better plants by importing direct.

ORCHIDS

Orchids of merit in great variety
Ranging from seedlings to specimens
Choice Exhibition or Commercial varieties
Hybrids from parents of distinction
Interesting Botanical Specimens
Delivered all over the world, by:

Stuart Low Co.

Nurseries: Jarvisbrook, Sussex.

Head Office: Bush Hill Park, Enfield, Middlesex, England

Catalogues on application. Inspection of our houses invited. Offer of collections.—small or large—prepared on request.

The Scarlet
DELPHINIUM

Nature's gift to Garden Lovers—the Flower of the Future

Tall growing, free flowering, well branched habit. True Scarlet in colour, hardy, easily grown, long lasting. Plant now.

4/- each. 6 for 21/-. Posted free

IFAFA LILIES

Hardy, free flowering in 5 distinct shades. White, Yellow, Red, Apricot and Pink. One of each, 6/-

Philip Montague
Bulb Specialist
Frankston, Victoria

W. J. HAGGETT

370 PARRAMATTA ROAD
PETERSHAM

●

Maker of fern tubs and casks to any size.

●

Petersham 3074

ORCHIDS OF SIAM

Cypr. callosum, Phal. Esmerala, Renant. coccinea, Rhyn. cœlestis, V. Denisoniana, and all kinds of SIAMESE ORCHIDS at MODERATE PRICES.

Catalogues free—Exchanges considered.

The Bangkrabue Nursery

24kh. Phaya Klahom's Lane
BANGKRABUE, BANGKOK, SIAM

INDIAN ORCHIDS

Fine collections of showy Orchids for £1, £2/10/-, and £5. Packing and Postage free to any address.

G. GHOSE & CO.

Exporters of Orchids, Liliums and Himalayan Flower Seeds.
TOWNEND, DARJEELING, INDIA

ORCHIDS & CALADIUMS

CYPRIPEDIUMS, 6 sorts for 24/-; 6 sorts CYMBIDIUMS, 23/-; 12 sorts Grand DENDROBES, 38/-; 12 sorts showy Orchids, 28/-. 24 sorts named CALADIUMS, 24/-. Post free. Catalogues of Orchids, Bulbs, Seeds, and Wholesale Quotation for Orchids, free. A copy of "ORCHID GROWING IN N.S.W." sent free with orchid orders.

The CHANDRA NURSERY

P.O. Rhenock, Sikkim 16 (Bengal)
INDIA

WATER LILIES

Six distinct colours—flesh, rose, white, yellow, red, salmon, for 27/6, or 5/- each posted.

J. OVERALL
Darwin Nurseries
Sulphur Creek . . . TASMANIA

ORCHID GROWERS

For supplies of
TODEA FIBRE, SPHAGNUM MOSS, &c.

●

Write

GEO. PAYNE
WINGELLO, N.S.W.

NATURAL HISTORY BOOKS

New and Second-hand, including a special purchase of 1600 from the Library of the late W. Howat Esq. Full list on request. Also FIELD NATURALISTS' REQUISITES, MICROSCOPES, Telescopes, Field Glasses, Survey Instruments, etc.

N. H. SEWARD PTY. LTD.
457c BOURKE ST., MELBOURNE

SIAMESE ORCHIDS

Ærides, Cypripediums, Dendrobiums, Phalænopsis, Vandas, etc., etc., etc., at reasonable prices; also willing to exchange.

PHRA MAHA VICHAI
591, KADICHIN, BANGKOK, SIAM

FRED A. MASHMAN Ltd.

CROYDON ROAD, HURSTVILLE
At Kingsgrove Railway Station

FLOWER POT MANUFACTURERS
F.A.M. SPECIAL AERATED ORCHID POTS

CHEAP AND EFFECTIVE

'Phone LW3113

If you are a flower lover, become a member of the Orchid Society of your own State; and join in appreciation of the climax of plants' evolution. Visitors welcomed at meetings.

•

The Orchid Society of New South Wales

Meets every month on alternate last Tuesdays and Thursdays, in Room 507, Phillip House, Phillip Street, Sydney at 8 p.m.

The dates of the next meetings of the Society are as follows:—

NOVEMBER:	TUESDAY, 24th	JANUARY:	TUESDAY, 26th
DECEMBER:	TUESDAY, 22nd	FEBRUARY:	THURSDAY, 25th

A hearty invitation is extended to all interested in Orchids to attend.

Communications regarding the Society should be addressed to:

T. H. JAMES,
67 Arabella Street, Longueville.
'Phone, B6351

•

Queensland Orchid Society

President:
MILES R. FOX
Queensland Fruitgrowers' Association
BRISBANE

Secretary:
T. C. HARVEYSON
G.P.O. Box 2002 X,
BRISBANE

Meeting Place:
MINIATURE RIFLE RANGE BUILDING,
Boundary Street,
BRISBANE

Meetings held on Second Friday of each month

Printed and Published in Australia by the Orchid Society of New South Wales
G. Hermon Slade, Hon. Editor.
Wholly set up and printed in Australia by Shepherd & Newman, Ltd.,
Yurong Street, Sydney.

TAYLOR'S

Orchid Growers, Importers and Exporters

5 ACACIA STREET, BELMORE, N.S.W. 'Phone: UL1045

Our 15 years actual experience, in Australia, in the culture of Orchids is at your disposal. We cordially invite you to visit our Nursery, and inspect our comprehensive stocks, of well grown and attractive plants. We also give free advice on the construction or alteration of houses suitable for the cult. All postal inquiries receive our prompt and courteous attention.

Fully illustrated catalogue free on application.
Contains growing instructions as well as detailed price list.

SPECIAL OFFER FOR THIS ISSUE ONLY.
CYPRIPEDIUM SPECIES

INSIGNE SANDERAE. Pretty yellow ,white tipped dorsal. 6/6 each
INSIGNE ROYALTY. Good full yellow tall stem. 7/6 each
INSIGNE HAREFIELD HALL. Large flower. 7/6 each.
One of each of the above for 22/6. Freight paid.

CYPRIPEDIUM HYBRIDS. 200 or more to choose from.
7/6 each, or in lots of 5 for 6/6 each.

All plants have 2 to 4 growths, and are in fine healthy condition.

TAYLOR'S

ORCHIDAL

A proven German Orchid Fertilizer which produces remarkable growth and magnificent dark, almost black-green, foliage.

PRICE: 6/- per ounce.
£4 per pound. Post free.

One ounce makes approximately 30 gallons fertilizer.

●

Sole Agents:

W. Hermon Slade & Co., Ltd.,
Manufacturing Chemists,
ROSEBERY AVENUE,
ROSEBERY
Postal Address: BOX 1540 D.D., G.P.O., SYDNEY.

Vol.
196.7-2

March, 1937.

Australian ORCHID REVIEW

C.T.G.

Price 1/6

The Official Organ of
The Orchid Societies of New South Wales & Queensland

Officers of the Orchid Societies of New South Wales and Queensland

●

New South Wales

President:

His Honour Judge H. F. MARKELL, K.C., B.A., LL.B.
"Kooyong," Hastings Road, Warrawee

Vice-Presidents:

E. A. HAMILTON
16 Hercules Street, Chatswood

Rev. H. M. R. RUPP
The Rectory, Raymond Terrace

Hon. Secretary:

T. H. JAMES
Arabella Street, Longueville

Hon. Treasurer:

L. F. HAWLEY
121 Middle Harbour Road, Lindfield

Committee:

C. A. JAEDE, M.B.
4 Rodney Street, Mascot

S. C. JAMES
39 Duntroon Ave., Roseville

Hon. Editor

G. H. SLADE, B.Sc.
"Raiatea," Oyama Ave., Manly

"Review" Sub-committee:

C. T. GOSPER
View Street, Lane Cove

Hon. Sub-Editor

R. M. STEWART
14 Bannerman St., Neutral Bay

Queensland

Patron:

Sir LESLIE ORME WILSON, P.C., G.S.I.E.
&c., &c.

President:

MILES R. FOX
Cleveland

Vice-Presidents:

E. J. BEARD
New Zealand Chambers, Queen Street, Brisbane.

M. P. CAMPBELL
Ruth Street, Wilston

Dr. D. A. HERBERT, B.Sc.
47 Main Street, Woollowin

A. LYONS
P.O. Box 217, Cairns

G. G. BASS
Flinders Street, Townsville

J. JEFFRIES
North Street, Rockhampton

Hon. Secretary:

T. C. HARVEYSON
P.O. Box 2002X, Brisbane

Hon. Technical Adviser:

C. T. WHITE
Botanic Gardens, Brisbane

Hon. Treasurer:

J. R. TANNER
Phelan Street, Mayfield

Hon. Auditors:

A. B. TANNER
Geelong Ave., Coorparoo

J. MURRAY COX
Equitable Life Building, Queen Street, Brisbane

Committee:

E. BECKLEY
Wellington Point

J. MURRAY COX
Equitable Life Building, Queen Street, Brisbane

L. F. HAYES
Primrose Terrace, Red Hill

LT.-COL. A. T. JACKSON
Roy Street, Auchenflower

W. McK. ROBERTSON
City Building, Edward Street, Brisbane

J. SMOLENSKI
Junior Terrace, Northgate

A. B. TANNER
Geelong Avenue, Coorparoo

T. RICE
Pront Street, Camp Hill

Now is the Time to Secure . . . .

ORCHIDS

Special Show Offer of 6 Assorted Orchids

Including Cypripediums, Dendrobiums, Cymbidiums and Vandas, for 25/-.

All the above are potted and are ready to be placed in the bushhouse or cool glasshouse.

These Plants can be inspected and purchased at the Show

We sell Orchids, buy Orchids, and exchange Orchids

A Fine Illustrated Catalogue with Cultural Directions, &c., is now available Free to all Orchid Enthusiasts (Please add 2d. postage)

Best Quality Todea Fibre, Finest Growing Sphagnum Moss, 3/6 per bushel bag.
Celluloid Labels, 3/6 per 100.
Orchid Pots (with cut sides and holes for hanging), 4in., 3/6 per doz.; 5in., 4/6 per doz.; 6in., 6/- per doz.; 7in. 8/- per doz.
Postage or Freight Rates Extra on all these Sundries

Do not fail to see my display of Orchids in flower at the ROYAL SHOW in the Horticultural Pavilion

Ask our advice on the growing of these beautiful plants, and we invite your questions.

Inspection Cordially Invited

J. BISSET

'Phone: Drummoyne 1124

48 WAREEMBA STREET, ABBOTSFORD, N.S.W.

THE ORCHID REVIEW

● Founded in 1893, by the late R. A. Rolfe, of Kew. The only Journal dealing exclusively with Orchid Lore, featuring articles on the History, Cultivation, Hybridization, and all matters of interest to the Connoisseur, Amateur, and Trader.

Exhibition Reports and Registration Records of new Hybrids accurately kept and published.

Price, One Shilling and Sixpence, monthly, postage free. Back volumes and complete sets, bound or unbound, can be supplied from

ORCHID REVIEW LTD.

5 Tavistock St., Covent Garden
LONDON, W.C.2

CYMBIDIUMS

Smart's Garden Service

for Cymbidium Species and Modern Hybrids

Our collection of Cymbidiums — both species and hybrids — is worthy of growers' attention. All mature, healthy, and vigorous specimens, our stock contains the very latest and best varieties procurable from the leading overseas growers, as well as the proved old favourites.

FOR SIZE AND QUALITY WE ARE UNEQUALLED

PRICES: From 25/- to £5

We also cater for every kind of garden shrub and plant.
Seedlings of Special Quality.

AZALEAS and HYDRANGEAS in great variety. Prices competitive.

Visitors always welcome. Stroll round our grounds and choose plants to your requirements. Situated on the left-hand side of Pacific Highway, between Gordon and Pymble.

Smart's Garden Service

819-857 PACIFIC HIGHWAY, GORDON, N.S.W.
'Phone JX3052

Stock Nursery: H. E. SMART, Sobraon Road, Eastwood. Phone: Epping 1439

BLACK & FLORY

SLOUGH

ENGLAND

Cablegrams: "Orchids Slough"

●

Vigorous and clean plants in all sections.

Unrivalled in Hybrid Cattleya, Brassocattleya, Albino Cattleya and allied hybrid genera. Collections from £6 per dozen.

Cypripediums: The demand in recent years has exceeded the supply of this increasingly popular orchid, but we hope to make offers next spring from our large developing stock. We have distributed many of the best Cypripediums in cultivation.

Odontoglossum hybrids in fine plants and great variety at £3 per dozen.
Miltonias Odontiodas Cymbidiums

AUSTRALIAN ORCHID REVIEW

Volume 2 March, 1937 No. 1

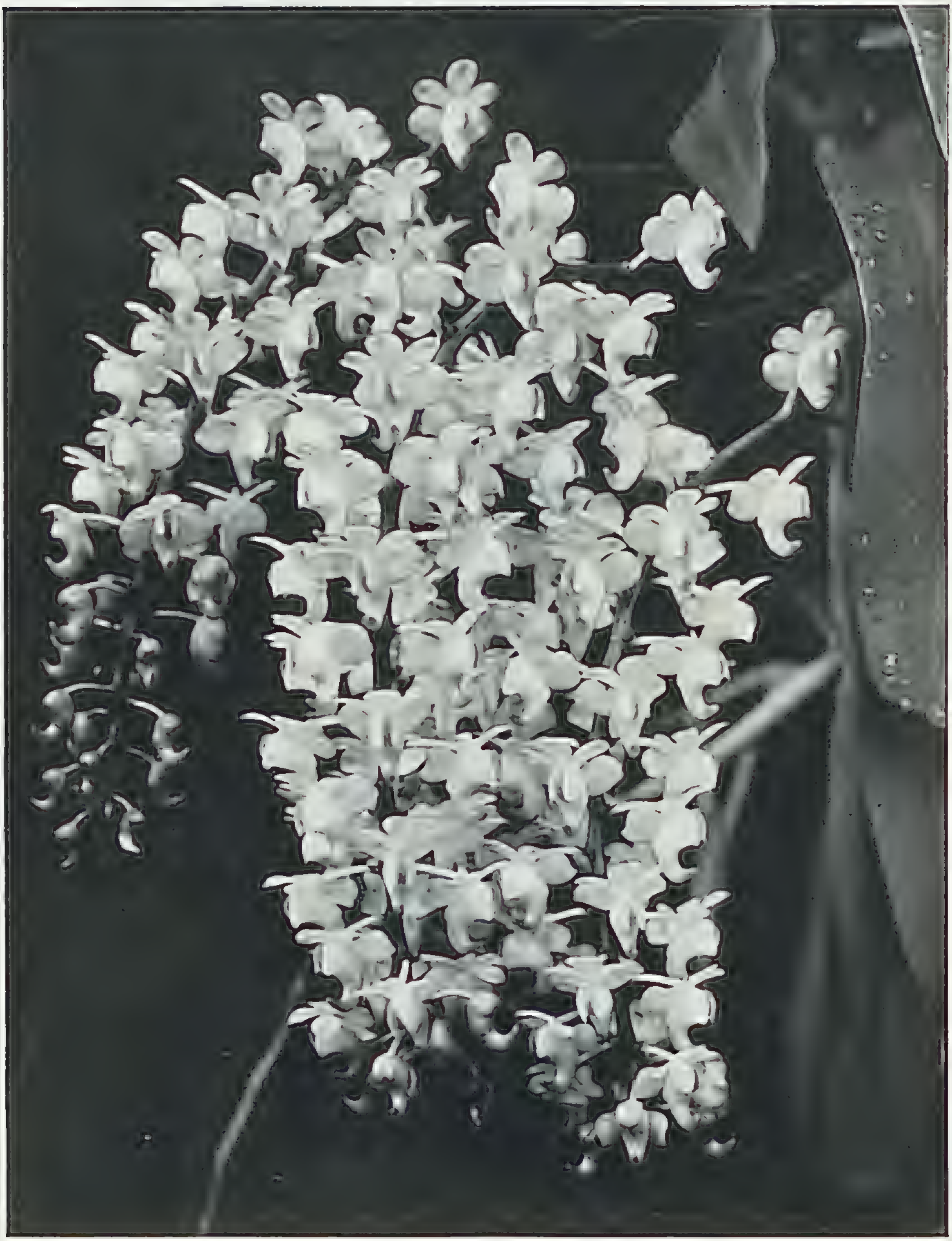
Contents

Aerides odoratum 13
Anoectochili 11
A North Queensland Orchid Hunt 24
Back Bulbs 10
Building up a Collection 17
Cattleyas 12
Census of North Queensland Orchids 28
Cymbidiums 4
Dendrobium Wardianum 23
Editorial 3
Editor's Note 20
Epidendrums in Australia 27
Letter from Sir Jeremiah Colman 13
Liparis Simmondsii 14
Miltonias 5
More about Rhytida Strangei 26
Notice to Contributors 26
Our Rock Lily 7
Raising Cymbidiums from Seed 9
Taeniophyllum Muelleri 25
The Dendrobiums bigibbum and phalaenopsis 21
The Editor 12
The Genus Dendrobium 15
Treatment of Newly Imported Orchid Plants 19
Visit of Mr. E. W. Cooper 22

INDEX TO ILLUSTRATIONS

Aerides odoratum 2
Anoectochilus species 11
Cypripedium Fairrieanum 19
Dendrobium aggregatum 18
Dendrobium Dalhousieanum 6
Dendrobium falcorostrum 17
Dendrobium pulchrum 29
Dendrobium speciosum 7
Dendrobium Wardianum 15
Dendrobium Wardianum 23
Miltonia Nadia 5
Liparis Simmondsii 14
Saccolabium Blumei 13
Taeniophyllum Muelleri 25
Thunia Marshalliana 9

Subscription: 6/- per year, post free.



AERIDES ODORATUM

These exquisite sprays were grown at Manly, N.S.W., in a cool house, by Mr. G. Herman Slade. The detail of the photograph enables the beauty of the delicate pale pink blooms to be fully appreciated. See article on page 13.

Photo. by H. J. R. Overall

Australian Orchid Review

Editorial

Join an Orchid Society!

● With this issue, we become the official Journal of the Queensland Orchid Society as well as that of New South Wales. This indicates an even closer co-operation between these two Societies, which already reflects beneficially upon orchid growing, both as a hobby and as a business in the two States and throughout the Commonwealth. It is gratifying, indeed, that the Queensland Society has seen fit to adopt our Journal in this way; and we feel that with their valuable assistance we will be able more efficiently to carry out our original ideals in providing a medium for the expression of views and experiences of Australian orchid growers, to popularise the cult in this country of ours; where conditions seem to be so well suited to the growing of these lovely blooms, and also to benefit others who otherwise would have had to learn from possibly bitter experience.

This spirit of co-operation is very definitely a characteristic of Orchid growers; and it becomes most manifest between members of the various Orchid Societies of Australia—bodies of men and women, young and old, who have come together from their common love of Orchids. There is a complete lack of jealousy amongst them in keeping secret the name of some partucularly fine plant or a successful cultural method, for fear another grower may acquire it; and on the other hand, the fact of a certain plant being of easy culture under certain conditions is made widely known and every assistance is given to others by the original grower. An illustration of this fact occurred some time ago at a meeting of the New South Wales Society. Most members had either not attempted or had given up the culture of Miltonias, owing to the so-thought difficulty of their culture. One member had achieved marked success, however, and exhibited several exquisite blooms on fine healthy plants; and as a result of his assistance, many others now have these plants in a flourishing condition. The constructive advice of a successful grower is more useful than any book.

What are other advantages of becoming a member of an Orchid Society? Three main ones present themselves most prominently. Firstly, membership enables one to meet others interested in the cult with the natural increase in enthusiasm with the comparing of notes and experiences, and many lasting and valued friendships are formed. Secondly, it enables members to effect important savings in mass buying and importing of plants. Groups of friends import in conjunction, and it is astonishing the savings that are made in freight and otherwise—one very quickly saves the cost of his subscription. Lastly, but by no means of least importance, are the talks given by the various members at each meeting, and circularised to those who could not be present. All sorts of subjects of general interest to growers are discussed; and the circulars provide a lasting record. Coupled with the formal talks are the informal conversations between members, both before and after the main business of the evenings, and the exhibition of choice blooms, from which one may learn what some of his or her own unflowered plants will be like; and also the names of additional desirable subjects to purchase.

All readers of this "Review" are welcome at the meetings of the various Societies, the dates and places of which appear in this issue. Join now and gain the utmost from your hobby.

Cymbidiums

B. R. HODGINS, *Essendon, Victoria*

● The hybrid Cymbidium, as we know it to-day, represents to my mind the greatest achievement of the hybridist in the Orchid world, for if we consider the few existing species we find that very few are worth growing at all—exceptions are *Insigne, Lowianum* and *Traceyanum*—and it is to these three as parents that we owe our present range of colours and flowers. In almost all other types of orchids the hybridist has reached a stage, past which further progress is very slow and doubtful.

This is particularly noticeable in the Cattleya family, but with the Cymbidium the work is just beginning, and it is hard to say how far it will advance or what forms and colours will appear during the next few years.

The hybrid Cymbidium, in its requirements, approaches more to the ordinary type of greenhouse plant than any other Orchid—it will grow under the most adverse conditions, and also responds readily to rich and generous treatment.

As a winter flowering plant it stands alone—the long arching sprays open during the months of July and August and last for two or three months on the plant, and for weeks when cut. The plants in pots or tubs also are useful for house decoration, for the Cymbidium, when well grown, has the most graceful and decorative foliage of any Orchid that I know. My experience of Cymbidiums goes back to 15 years ago, when I imported half a dozen hybrids, and one of those still exists in my collection, in the variety "*Gottianum.*" For years, I, with others here, tried to grow these plants in fibre, as we did Cattleyas. Our plants were sickly, with poor, narrow foliage and weak, poorly-coloured flowers. Also, we were greatly troubled with a black spotting of the foliage, which for years caused us great concern. This was identified as a disease by our scientific department here. Several large plants I, myself, burned in order to clear it out of my collection, but to-day we know that this condition is brought about by starvation, and with proper compost any plant can be grown out of this condition in a few months; also, by reverting to our old potting mixture, I can undertake to reproduce this undesirable condition at any time.

Under these old conditions, our plants made little, if any increase, either in size of bulbs or number of leads, whereas to-day I can show you plants of 4 or 5 bulbs potted into tubs last autumn that at present have six leads and should next year produce as many spikes.

Also, our present-day method tends to improve the size and colour of the flowers.

The Cymbidium requires a cool rooting medium with damp moisture-holding conditions beneath it, and for this reason open benches are a distinct failure. A concrete bench covered with live moss and the plants raised on shallow pots or on a flat brick, has in my case given best results. Also, the benches for Cymbidiums should be low; eighteen inches above the floor level is, in my opinion, best.

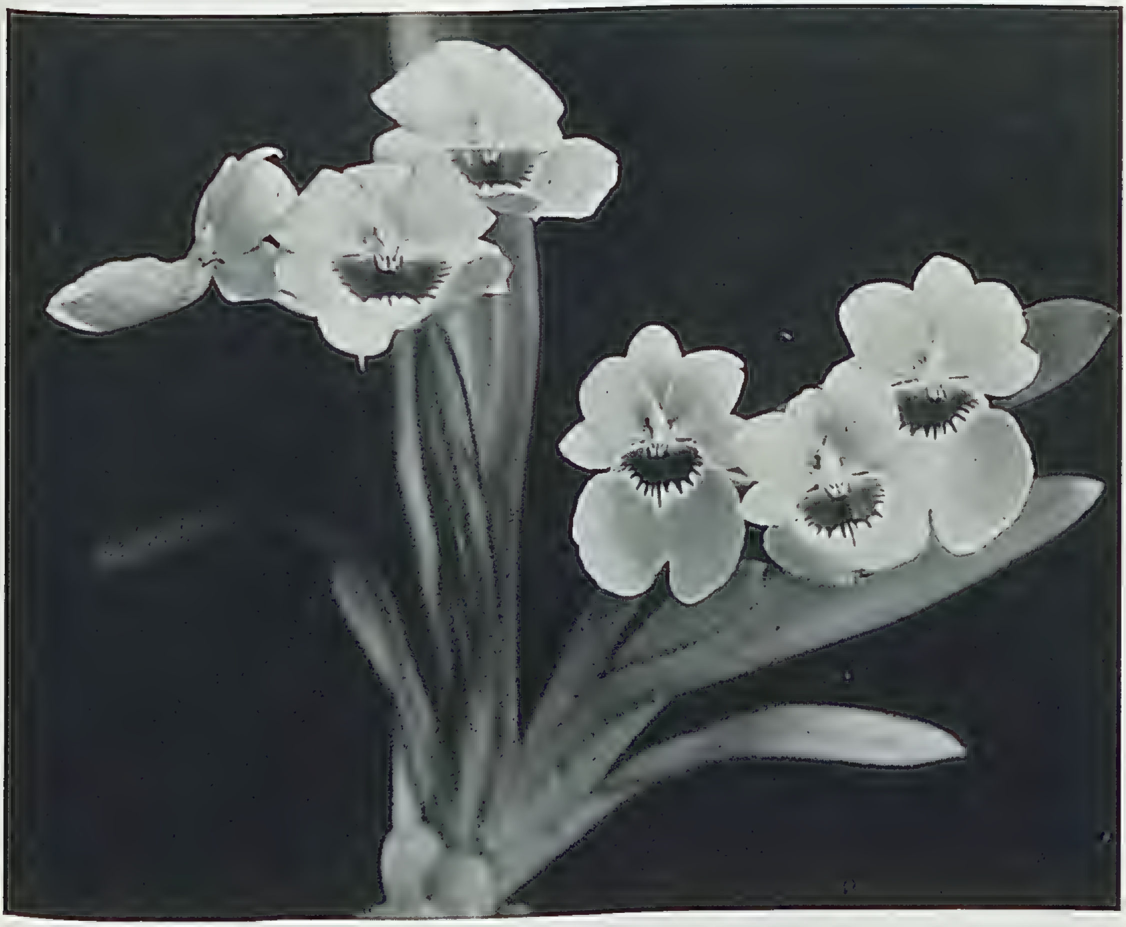
Small wooden tubs are also a distinct advantage over the clay pot, which in our climate dries out too rapidly.

Two years ago I placed my first plant in one of these eight-inch red-pine tubs. The plant has made such progress that this season it produced five spikes with upwards of 30 flowers on each and was, early this month, transferred to an eighteen-inch tub. Tubs of this size require two persons to move them, so that one wonders what space and equipment will be necessary when we learn to grow these plants really well. My present compost consists of almost 50 per cent. of a good fine polypodium fibre that seems to contain the food that these plants relish; the greatest recommendation for this fibre is the fact that the native Cymbidiums thrive in it in Northern Queensland. The other half of the mixture is made up of three-quarters of a good chocolate loam, being the top spit from our hill districts, and one-quarter good rotted cow manure that is free from fungus growth. To this is added a good liberal quantity of fine charcoal or broken pot to keep the mixture open, and last, but not least, a good sprinkling of coarse bone.

This is not the bone manure mixture, but pure clear white bone, and ranging from the size of a grain of wheat downwards—the coarser the better.

Sphagnum moss can be added to the mixture, but I prefer to save this and to finish the pot or tub off with a topping of a mixture of live moss and fibre in equal parts. This soon produces a crop of growing moss on the surface which gives a neat and tidy appearance, and also serves to indicate when the plant requires moisture.

(*Continued on page 6*)



MILTONIA NADIA

Photo by courtesy of H. Cardwell

Miltonias

H. CARDWELL, *Drummoyne, N.S.W.*

● It is only quite recently that I undertook the culture of *Miltonias*, but I feel I have had them long enough to claim success with them. The plant pictured in this issue and several others were not repotted on arrival, and they are still in the pots in which they were imported. I believe that these plants like to become accustomed to our altered conditions before being moved. I have them in a house which is heated in winter with thermostatic control which kept the house at the usual Cattleya temperature, but I must confess that I was not over particular in the matter of keeping the warmth up, and the plants did not seem to be affected in any way.

Their position in the house was near clear glass facing east, where they received about two hours of the morning sun. They were placed on inverted pots over moist shells, and always had plenty of light and air.

After their arrival from England, I watered them sparingly until root growth became apparent, after which the water supply was considerably increased, and when in spike they were literally flooded with water daily.

The plant illustrated carried deep pink blossoms of very large size.

Much has been said and written about the difficulty of growing Miltonias, and I was diffident at trying their culture, but my plants just grew themselves. My recommendations to others who intend obtaining a few of these exquisite plants to add beauty to their glass houses is to give them a free circulation of air all round them, plenty of light and some morning sun for preference, and ample water during their growing period and whilst making flower spikes. They must also be kept scrupulously clean, and free from thrip and scale.

Cymbidiums

(*Continued from page* 4)

These plants require just the same amount of crocking as you would give to other plants such as palms or ferns. The live Sphagnum moss is to a number of growers a matter of great concern. My own opinion is that if this moss will not grow, your conditions are too dry and arid, or else too dark to expect orchids to thrive. This moss requires very moist conditions underneath but considerable light above.

DENDROBIUM DALHOUSIEANUM

A choice Dendrobe with pale biscuit coloured flowers, the lip carrying an intensely dark red blotch.

Photo by courtesy of Mr. John Bisset

The time of potting Cymbidiums is one of the most important points in their successful cultivation, particularly if they are grown under cool conditions.

September and October are the best months. If the operation is delayed later, the growing season is cut short and the bulbs will not be sufficiently made up before winter, to flower freely.

Plants that have filled their pots or tubs with roots can be kept in good colour if given weak doses of liquid manure during the growing season, but it is far better to move them on into larger quarters and new compost before this condition comes about. After potting, for several months the plants will relish as much heat and humidity as it is possible to give them.

We often hear it stated that Clmbidiums should be well pot-bound before they will flower freely. This is quite wrong. Try growing them with liberal room and under the conditions as above stated and see the difference.

Of course, one must use a certain amount of discretion, or in other words, common sense. Some dealers have at times advised would-be growers who buy small unflowered plants out of 4-inch pots, to immediately put them into large tubs. This, of course, can lead to nothing but failure. The plants must be worked up, as is necessary with any other form of plant life that is to be grown with success in pots or tubs.

The modern Cymbidium has been so crossed and recrossed that names mean very little; with the exception of some of the primary crosses such as Pauwelsii, it can be said that no two plants from a pod are alike. I can instance one particular cross of which I imported 25 unflowered plants. Almost half are yellow or cream and the others pinks. From this batch I have selected perhaps the finest and most delicate pink Cymbid that I have seen and also the best cream, and these two most desirable and different plants must bear the same name.

If you admire a particular hybrid, do not think for one moment that if you order one of that name you will be supplied with an identical plant. Do not blame the nurseryman if your choice is a rich red and you get a white. It is almost as big a gamble as our own "Flowering Gums"—the plant must be grown to maturity to reveal its colour or form. One hybrid "Alexanderii," for instance, can be had in almost any colour, clear waxy white to rich cherry red through all shades of pink, yellow, etc. One could build up quite a collection from this cross alone.

Cymbidiums well grown are not affected by disease—it is only when they fall into poor or indifferent health that scale gets a hold. This can be killed by dipping or spraying the foliage with "Volck." If it is one of the woolly scales or red spider, add "Pysect" or nicotine to the mixture, but if you have these troubles, look for the cause in your growing conditions or your compost.

Our Rock Lily

F. DOUGLAS, *Mosman, N.S.W.*

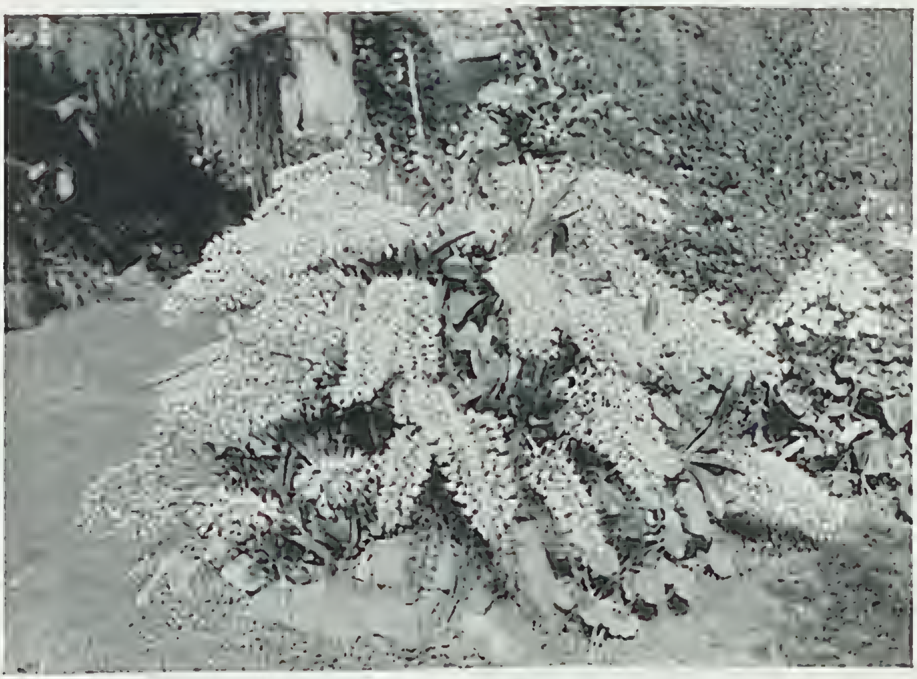
● "What could one know of Orchids who only Orchids knows?" is an indisputable truism which can be localised into "What could one understand of Dendrobiums who understands not Dendrobium speciosum?"

With those words in mind, and your permission to hand, I propose to solicit information about the culture of the varieties of our common "Rock Lily," feeling, as I do, that this and kindred Societies could, with advantage, discuss our best known and most common indigenous epiphytal Orchid.

Believing that one can only take out of a Society, as in life, simply that which one puts into it, I herewith put into words and the common pool, my opinions as to the best method of their culture, with the reasons, or, rather, I should say, the reasons which have formed and forced my ideas as to their cultivation.

Let me admit that my practical experience of their cultivation is nil and, although my rudimentary knowledge concerning them is on a par, it does not prevent me from saying that they can be a very ornamental plant, worthy of inclusion in every home and garden, and well worthy and deserving of far more thought, attention and prominence.

I will assume that I have just received a few "Rock Lilies," and am naturally faced with the thoughts, if not the actual problem, "What shall I do with them?" "Where and how shall I grow them?" Having no experience, my endeavour would be to obtain the experience of others—orally, in literature of any description dealing with Orchids, and by observing the procedure practised locally. The only reply that "they will grow anywhere and upon anything" does not edify or satisfy. Cultural literature likewise does not prove beneficial, being mostly written for conditions in Europe or Britain and generally admits that there is a difficulty in their successful cultivation there. No comprehensive article written and based upon Australian cultural conditions has yet come to hand.



DENDROBIUM SPECIOSUM

This magnificent specimen, grown by Mr. A. G. Hamilton, at Chatswood, N.S.W., on a pile of rocks in full sunlight illustrates the ease with which this species can be grown to perfection.

Photo by Mr. E. A. Hamilton

For observation one could make a cursory review of the Botanic Gardens, where one has the right to obtain a guide and example and would anticipate and expect a practical demonstration of where and how. Alas! one is doomed to disillusionment. The veriest tyro could detect that there is no lesson to be learned there, except, perhaps, that of comparison between those in the bush-house and a plant on a rock not far from the Maiden Memorial. Where, then, has one seen the best plants? At Taronga Park they seem to do fairly well and set seed freely. One may take it that that is a good sign and sure guide, but there are better, far better, on the North Shore, out Parramatta way, and also about some of the older residences surrounding the Harbour. As a budding culturist, I am ashamed to say, and regret to admit, that the best plants seen were those at Paddy's Markets and those growing in their natural element in jungle country on the Tantowanglo Mountains, South Coast, N.S.W. Their situation was interesting, in that wherever found naturally they always occupied a similar position on the face of similar rocks, with usually Lawyer Vine and Smilax in the vicinity, facing north-east towards the prevailing summer winds. Memory reminds me that large specimens, the roots of which were adhering to the bare rock, defied removal by two strong men; they were unable to dislodge any with 3 inch to 4 inch pseudo-bulbs. Plants which were growing in crevices or places where debris had collected were but pigmies and could be easily removed. An examination of the roots disclosed that all that had penetrated the decayed vegetation were dead, while those which were uncovered were very much alive and tenacious. To me it appeared that, while they could live in humus, they would live longer and better when there was nothing surrounding the roots. An observation tour of the Sydney suburbs confirms this view and convinces me that for their successful cultivation, a medium is required which does not contain humus and upon which their roots would be exposed to all the winds that blow. No one will deny that generally their cultivation is misunderstood; otherwise, why are they planted and treated like a terrestrial so frequently? Only occasionally are any cultivated specimens healthy and robust. An examination will disclose that the better plants are generally in a situation and upon a medium which does not prevent a free circulation of air around the roots, and no appreciable difference is apparent whether they are on rock, wood, or tree fern. A selection of a medium, therefore, would be confined to these materials. Pots are unsuitable in shape, used either way up, but ordinary house tiles would be ideal for small plants, with rough wood boards, about one foot by two feet, for the big specimens, preferably of a variety upon which they grow in nature. They may, of course, show a preference for some other wood—experiment alone will decide.

The next decision would be that of position or situation. It has been observed in wanderings that in a shady position they frequently grow strongly and exhibit a deep green healthy looking foliage, but they do not flower freely. On the other hand, when in an exposed position, they grow with a short, firm and sturdy appearance, with perhaps more yellow than green in the leaves and pseudo-bulbs. The important point is that they flower consistently. As one grows them for flowers, that must, therefore, be my first consideration, though to many it may be considered desirable to sacrifice a truss or two in order to obtain a better looking plant. It should not be difficult to grow them in a partial shade until the robust growth is completed or nearly so, then transfer them to a sunny situation in order thoroughly to ripen the wood and encourage the flowering. Being on boards and tiles entails no difficulty in the shifting. It may be that neither extreme position is necessary, and that a half sunny, half shady position is preferable.

Finally would come treatment. Watering, when the roots are adhering to the surface of whatever rooting medium is used, can be applied by spraying. It is not absolutely necessary, but nevertheless may be advantageous, as supplemental to the rain during dry spells. Either of the materials mentioned has the power to absorb moisture or draw it up from the soil. A reservoir in the form of a sponge of sphagnum moss, crocks and charcoal could be attached, and no doubt would be beneficial. Danger may lie in the too liberal application of moisture.

Several plants encountered appear to be healthy growing as terrestrials, and respond to manures, though time alone (in years, not in days) can prove if it is really beneficial. Grown in the proximity of a stable or manure heap and absorbing the fumes is a different matter.

Not much sign of disease had been observed, although occasionally the leaves are marked and unhealthy, the marks resembling the effect of Thrip. In any case, a weak soap and nicotine solution is the only safe insecticide for other members of the family and would probably remedy the little that affects the "Rock Lily."

Raising Cymbidiums from Seed

L. F. HAWLEY, *Lindfield, N.S.W.*

● Most amateurs approach this subject with a great deal of diffidence, being under the impression that a highly specialised technique is required and years of waiting necessary before any tangible results can be expected.

Under Australian conditions, the reverse is the case, and Cymbidiums may be grown from seed with a minimum of attention and without any special knowledge of the subject. There is no need to study the growing of these plants by any of the recognised flask methods, as they can be easily raised by either sowing the seed on Turkish towelling, or even on the surface of finely cut Osmunda fibre and moss.

Needless to say, the growing of these plants is a fascinating hobby, and, provided the seed is fertile, germination quickly ensues. The method usually practised is to obtain a 4in. pot, which is then filled to within about 2in. of the top with broken charcoal. Over this, a layer about 1in. deep is spread of very finely cut Osmunda fibre and Sphagnum moss in the proportion of three to one. A circular piece of washed Turkish towelling or linen, cut to fit the top of the pot, is then placed over the compost and the edges firmly tucked in so that the mixture will hold the covering against the side of the pot. If the operation has been carried out properly, the top of the pot, which will be the future seed bed, will resemble a tennis ball which has been cut in half.

THUNIA MARSHALLIANA

This easily-grown variety was grown out of doors by Mr. G. Herman Slade. The flower is white with yellow, brown streaked lip.

Photo. by H. J. R. Overall

Having applied the towelling, it is then advisable to press a small quantity of Sphagnum round the edge of the towelling where it meets the pot, as it will be found that in the course of time some of the seeds will be washed off the towelling on to the moss, where it will germinate just as easily.

It will now be necessary to thoroughly saturate the pot and its contents and to allow the pot to drain. The seed should then be sown very thinly over the surface of the towelling and the pot then placed under a bell jar—though a sheet of ordinary glass placed over the top of it will answer the purpose quite well. The pot should then be stood in a warm, moist position in the glass house and shaded so that the rays of the sun will not fall directly upon the seeds. It is not necessary to keep the pot in a saturated condition, as this would cause a destructive fungus to appear and also would have a tendency to sour the mixture. At the same time, the pot must not be allowed to dry out. A happy medium must be struck, and it will probably be found that if the pot be immersed in water to just below the rim for a few seconds about once in every fortnight it should be sufficient to keep the compost just damp and in the best condition for germinating the seeds. A close watch should be kept, and if the towelling shows signs of drying out, it should be lightly sprayed with water, but it is not advisable to immerse the pot more often than stated above.

During the summer months, germination of fertile seed is discernable within about six weeks of the sowing. The seed is then observed to swell and soon resembles grains of sago, both in colour and size. At the end of the next few weeks, a remarkable change will be noticed—the seed having become the size of sweet-pea seeds, of green colour, and commencing to throw out its first leaf. At this stage it is desirable to transplant the seedlings, placing about twenty-five of them in a 5in. pot, deeply crocked and surfaced with finely cut Osmunda and Sphagnum in similar proportions to that used previously. The best results will be obtained by leaving the small plants in this second pot until they overcrowd one another. If the plants are grown through the winter at a minimum temperature of 70° they will be ready to be transplanted into individual 2in. pots at the end of the first twelve months. They then grow quickly and strongly. They should be grown through the first three winters without rest, transplanting them to larger receptacles as required. Some will flower during the fourth year, but results cannot be expected from the majority until the fifth or sixth years. Whilst this may appear a long while to wait for the plants to flower, the time soon passes, and if a few seeds are sown every year, the first wait is the longest and flowers from the second year's sowing follow the flowering of the first year's batch, and so on.

Should a number of our local amateurs raise these plants from seed and exchange their surplus with one another, it would not be long before we had many splendid collections of these desirable plants, rivalling those of overseas.

Back Bulbs

LESLIE H. NEWMAN, *Lindfield, N.S.W.*

● I was greatly interested in Mr. Gosper's little article under the above caption in the last issue of the "Review," but in one respect I would join issue with him. Mr. Gosper quotes the idea as being, generally, that the back bulbs are a nuisance and a drain on the main plant, and goes on to say, "This, to me, seems to be contrary altogether to the working of nature, which strives to maintain to the last effort the health and propagation of the plant."

To my mind, the "idea" is in strict conformity with the processes of nature and the survival of the fittest. In the animal kingdom, the individual comes into being, serves its purpose, becomes effete and passes out—leaving to succeeding generations the ever-constant urge to carry on the race. And so it is with all forms of life, including that of plants.

When the pseudo-bulb of, say, a Cattleya, has matured, perhaps flowered and produced a new pseudo-bulb to carry on, it has served almost all that nature requires of it. The vital forces stored up within it are the source of nutriment to the new bulb until it, in turn, becomes fully established on its own root system. Then, except in dire adversity, the new bulb is able to carry on without it. In the course of time the root system of each bulb in turn dies out, and when that has happened, the rootless bulb depends on the newer portion of the plant to keep it supplied with nourishment. It is true that that same store of nourishment may be returned to the newer portion in case of need—but that, after all, is nothing more than giving back that which it had borrowed. When the back bulb is severed from the front of a plant, its means of support are taken from it and it is then, and then only, that it marshalls its diminishing forces in pushing out a new growth.

In all other respects, I subscribe fully to the views expressed by Mr. Gosper, and think that we can hold too fast to old-established customs.

In my somewhat limited experience with the Cattleya group, I have experimented in the dividing of the plants and already am convinced that much good material will be wasted if the plants be divided solely according to popular methods. I have practised "vivisection" on a number of my plants, in the face of contrary advice and many warnings, and the results now showing justify my temerity in daring to be unorthodox.

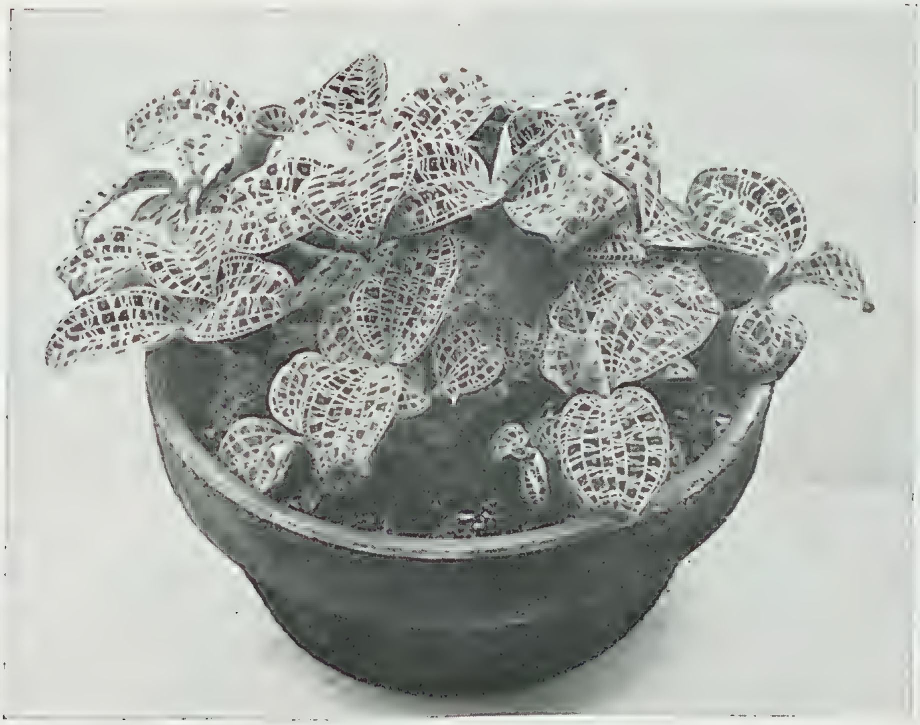
Anoectochili

The Jewel Orchids

● The plant pictured above forms a decided departure from the general conception of cultivated orchidaceous plants. Its flowers are quite inconspicuous, and its charm and beauty lie in the delicate colouring and exquisite marking of its leaves.

The vegetative structure of the most showy flowering Orchids is usually stiff, without charm, and often ugly; and to relieve this, growers strive to cultivate with them, a number of ferns and other foliage plants. By growing a few Anoectochili, they can grow an orchidaceous plant with a beauty of foliage which is scarcely exceeded by any other class of plant. Another peculiarity of them is that they need an extremely moist and still atmosphere; and they are almost invariably cultivated under a bell glass, although a disused fish tank with 2 inches of damp shell grit under the plants, will suit them admirably—the cover of the aquarium should be left on.

Anoectochili are found generally distributed throughout tropical Asia, The East Indies, and even in Australia, always growing in a damp and shady situation. There are a number of charming species which are apparently not difficult to grow, although it is a problem to import them in a living condition. One or two are sure to be of interest in every collection, and a serious endeavour should be made to grow a few of these little gems. Perhaps when the Air Mail rates are reduced, we will be able to import these plants successfully. The absence of pseudo bulbs gives the plants less stamina for travelling, but the Air Mail will doubtless overcome our difficulties.



AN ANOECTOCHILUS SPECIES

Photo by courtesy of Mr. W. Schmidt

Cattleyas

B. P. DUNSTER, *Tunbridge Wells, England*

● As the flower of every season, and in constant demand by the florist, Cattleyas and their culture have reached a very high standard. With them we include the bi-generic and multiple hybrids, viz., Brasso-Cattleyas, Brasso-laeliocattleyas, Laeliocattleyas, Sophrocattleyas, Sophrolaelias, Sophrolaeliocattleyas, Potinaras and Rolfearas, as they all demand similar culture.

Sunshine is essential to success with this group, and they will stand any amount of heat—that is, natural heat—so long as some protection is given to prevent burning. Fire heat they enjoy no more than any other Orchid, but we have to resort to it in the winter months to maintain a minimum temperature of 60° F. The effect of an occasional lowering of temperature is not always evident at once, but later on it will be noticed by slow growth, plants finding it difficult to "break," short flower stems, and, perhaps, chlorosis.

The temperature, potting and watering cannot be considered apart; they run into one another, as it were. Loose potting prevents correct watering; over-watering rots both roots and good compost; and a consistent low temperature or an odd one when the plants are wet, will kill the lot.

The natural season for growth is spring and summer, the autumn the finishing period when we endeavour to get the new growths well "harvested," and the winter period should show little external change beyond a gradual building up of the flowers.

This is the general rule, but there are exceptions, so that we have plants in all stages of growth and, we hope, in flower, all the year round.

The routine of damping-down of the houses must be governed by the outside temperature and the amount of fire-heat in use, and should only be done with a rising thermometer. Watering is a matter that requires much judgment; give a drink when it is needed, not a drop to keep them going. The best way to test for water requirement is by lifting, and if you have time, do so. Once a week during the summer, and fortnightly during the winter, will suffice for this operation if conscientiously done and the fire-heat is not excessive.

Re-potting is best done in spring and early summer to give the plants a long growing period before the winter, and pure Osmunda fibre is the best medium, with a little clean Sphagnum moss in the top layer. Pot as firmly as possible —one is excused all broken pots when potting Cattleyas—and do not over-pot. Rather have to do that plant again next year than check it by over-potting. A closer atmosphere, shade, and spraying instead of watering, are the necessary conditions following re-potting, and these should be maintained until such a time as the roots are working well.

Shading for this genus should not be so dense as for cool-growing Orchids. Lath blinds are advised, as they produce a shade similar to the mosaic of the leaves of trees, and they should be so fixed that a good current of air passes between them and the glass, twelve inches above the glass being a good distance.

This advice applies solely to plants of flowering size or approaching that stage. It will be appreciated that seedlings and propagated pieces call for more moisture, etc. The chief insect pest that troubles Cattleyas is "scale." Experiments with white oil and various sulphur mixtures are in vogue, but until we have assured proof of the safety of these materials, we continue with a brush and an approved insecticide. Thrip is sometimes troublesome, but with adequate ventilation is not a serious pest with this genus.

It is interesting to compare present-day prices with those of, say, ten years ago; few cool house Orchids have maintained their price, much less added to it, after a decade, as have the best of the Cattleyas.

The Editor

● Mr. G. Hermon Slade, the Hon. Editor of the "Australian Orchid Review," is leaving for England, the Continent and America, on the 20th March, and will be absent about nine months.

During his absence, all correspondence relative to the "Review" should be addressed to the Hon. Sub-Editor, Mr. R. M. Stewart, Messrs. S. G. Sommers & Stewart, Solicitors, 197 Elizabeth Street, Sydney, N.S.W.

Mr. Slade is anxious to meet as many Orchid growers as possible whilst overseas, any may be communicated with care of the English, Scottish and Australian Bank Limited, 5 Gracechurch Street, London.

Aerides Odoratum

● One of the earliest Orchids to be successfully cultivated in England was *Aerides odoratum,* the most widely distributed and one of the most usually cultivated of the Aerides.

Aerides, on the Continent, have lost a great deal of their popularity, due to the fact that they require a fairly high temperature. In Sydney, however, they will grow in an ordinary unheated glass-house with the greatest of ease, and therefore with their multitude of small, tight flowers and delicate perfume, should find a place in even the most select collections.

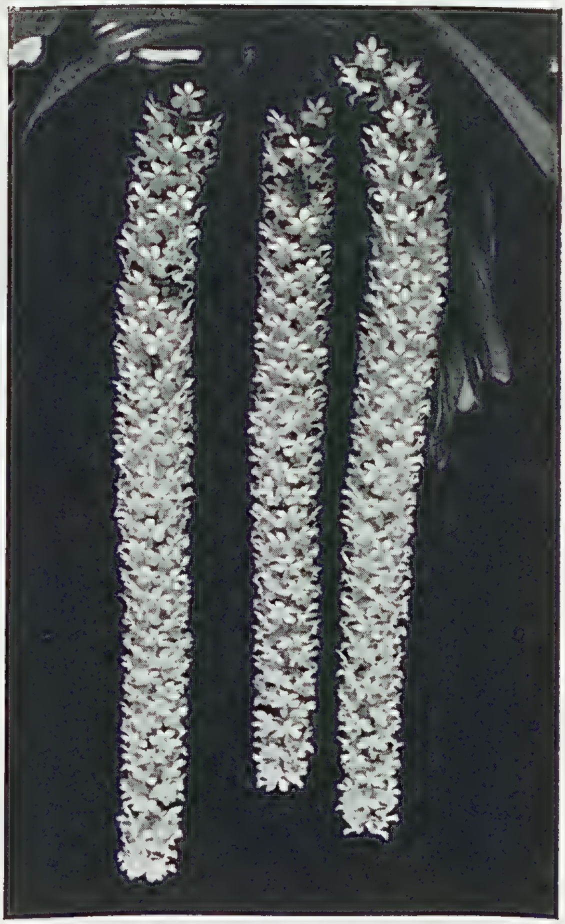
This is a plant which needs to be carefully selected in order to obtain the best flowering type, as some of them produce flowering spikes in which the flowers have a tendency to die off at the base of the spike, before those of the extremity are in bloom. The best type opens its flowers from the top to the bottom of the spike in about three days, and will remain in full perfection for about three weeks. The good variety is distinguished from the other plant by its shorter leaves, which are particularly broad and very flat.

A well-grown plant will produce five to eight flowering spikes per year, and it is almost always in bloom at Christmas time—a very welcome time as far as Orchids are concerned, as there are then so few other Orchidaceous plants in flower.

A letter from Sir Jeremiah Colman, Bart, of "Gatton Park", Surrey, England

● The "Australian Orchid Review" reached me last evening, and I have been much interested in perusing the pages. I should not have ventured to offer criticism had you not asked me to express my views. I think you are distinctly to be congratulated on the production. The contents are very informative, and I think it would not only be helpful to those who are growing, but encouraging to others who want to join the ever-increasing number of orchidologists.

I am specially interested in all that is said about the conditions under which Orchids should grow. I have had a long experience in my growings, and it is only by patient experimenting that one finds the position in which the plants can be happy. It is a most difficult problem, because one may find a place where they will grow for three months, and then may want an entirely new position. Moreover, local information is most puzzling. Some plants which grow at high altitudes and which one would expect would require cool treatment, will only grow under what we know as "stove" conditions, but no doubt the more frequent fault is keeping plants too warm. I see no reason why many of them should not be acclimatised to outdoor conditions in Australia, and if so, you will have gained a great point.



SACCOLABIUM BLUMEI

Photo by courtesy of Mr. John Bisset

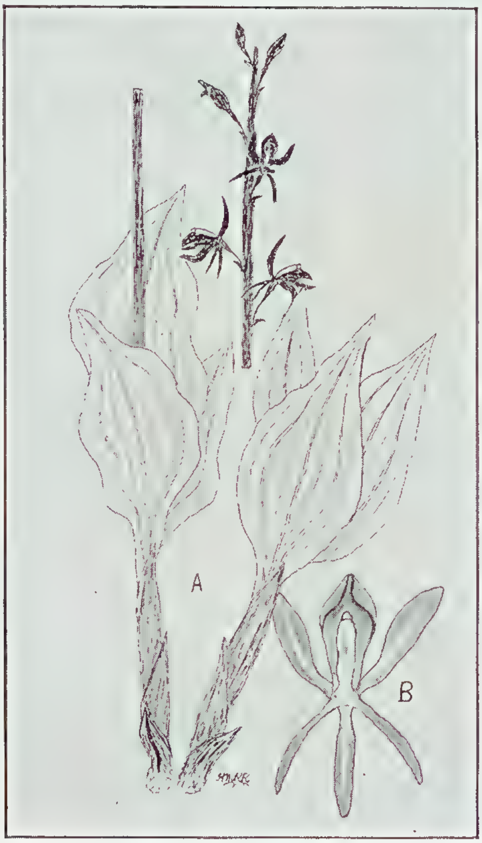
I cannot help thinking that eventually Miltonias will thrive. One can understand the great difficulty in getting them out alive, because they are very tender, but they grow so freely here, and require rather warmer treatment than Odontoglossums, one would have expected they could be successfully grown in Australia. They are a very beautiful genus, and make a great show.

Liparis Simmondsii

A recent addition to the N.S.W. Orchid Flora

Rev. H. M. R. RUPP, *Raymond Terrace, N.S.W.*

● During an excursion made by a number of Orchid enthusiasts of N.S.W., Queensland, and Victoria, to the Brunswick River, on the North Coast of N.S.W., in the spring of 1936, Mr. R. Norris, of Mullumbimby, called our attention to a plant in his Orchid house which he had found on the upper reaches of the Brunswick. It had the habit of a dimunitive *Calanthe*—there were no flowers, but a single dry capsule on an old scape proved beyond doubt its orchidaceous character. It was unknown to any of us; but subsequently several plants were secured, and Mr. C. T. White, the Queensland Government botanist, who was a member of the party, expressed the opinion that it would prove to be F. M. Bailey's *Liparis Simmondsii.* This view has been confirmed. A plant in my bush house produced two flowering spikes, and though, unfortunately, a fierce hot wind during the recent drought destroyed all but four buds, these have now expanded, and definite identification is possible.



LIPARIS SIMMONDSII
Drawing by Rev. H. M. R. Rupp

When the late F. M. Bailey described this species in the "Queensland Flora," he had not seen flowers. These were later on obtained by Messrs. J. F. Bailey and C. T. White, who published a supplementary description in *Botany Bulletin No. XIX.*, Qld. Dept., of Agriculture, 1917, in which they remark: "The supposition by F. M. Bailey that this species was closely allied to the Asiatic *L. atropurpurea* is thus borne out by the flowers. The finding of a purple-flowered form among our native species is very interesting."

The affinity between this Australian species and Lindley's *L. atropurpurea* is indeed very close. An excellent coloured plate of the latter may be seen in *Bot. Mag.* t. 5529. The flowers are larger than those of *L. Simmondsii,* but otherwise are very similar. In both species the colour is a very deep purple.

J. F. Bailey and White describe the labellum as having a bluntly triangular apex. In my flowers, this shape is only due to the infolding of the margins on either side of the actual apex—if these folds are straightened out, the contour of the labellum is almost rhomboidal. The labellum is hardly reflexed at all, thus differing from that of all other Australian species. *L. Simmondsii* is an extremely interesting addition to the orchids of this State, and Mr. Norris is to be congratulated on his discovery.

Lest it may be suggested, from what I have said above, that *L. Simmondsii* may be merely an Australian form of *L. atropurpurea,* I may add here that there are important differences which justify separation. These differences may be tabulated thus:—

L. Atropurpurea	*L. Simmondsii*
Stem bracts spreading.	Stem-bracts appressed, very dark.
Leaves very unequal-sided near the base.	Leaves almost equilateral.
Scape terete.	Scape very angular.
Petals "waved."	Petals straight.
Labellum oblong-obtuse, recurved.	Labellum roughly triangular or almost rhomboid, but the margins near the apex in-folded, obscuring the contour.
	Labellum not recurved.
Column wings large, rounded.	Column wings small.

The Genus Dendrobium

P. A. GILBERT, ***Lakemba, N.S.W.***

A continuation of Mr. Gilbert's interesting article published in last quarter's "Review." It will be concluded by a list of the Sections of the Genus to be published in our next issue.

● About 100 species are certainly worthy of the cultivator's attention, perhaps many more, and from the hundred, twenty or so extra choice species could be selected. Some of the most desirable and manageable species are as follows: *Aureum, Bensoniae, bigibbum, chrysotoxum, clavatum, Dearei, Devonianum, Falconeri, Farmeri, fimbriatum*, var. *oculatum, Findlayanum, formosum, infundibulum, moschatum, nobile,* and varieties, *ochreatum, phalaenopsis, pulchellum, superbiens, thyrsflorum, Wardianum. Wardianum* is entirely deciduous to the extent of shedding all its leaves after the season's growth, but that is counteracted by the throwing out of a "premature" shoot prior to resting, which in reality carries on the function of the plant to a limited degree. The new shoot must not be watered or allowed to remain wet, and any water lodging in it must be dried out with a piece of white blotting paper; *ochreatum, chrysanthum,* and *crassinode* have similar habits. The most convenient way to cultivate a collection of Himalayan |Dendrobes composed of dissimilar species, is to arrange them in communities, grouping them according to their affinities. Thus, *thrysiflorum, densiflorum,* and the like go together, designating them as evergreens; *nobile* and other semi-deciduous forms by themselves, while the completely deciduous species, such as *Wardianum, chrysanthum,* and *ochreatum,* can be handled as another batch, owing to their extremely early breaks into growths. Equatorial and intertropical species should be treated likewise, and associated in separate groups. Many of the Australian Dendrobes do not respond too readily to the treatment accorded the Himalayan species, doing better in wooden baskets or mounted as described in the July "Australian Orchid Review," the New South Wales species receiving more bush house treatment than otherwise.

DENDROBIUM WARDIANIUM
This beautiful variety forms the subject of Mr. T. C. James' article on page 23
Photo by Mr. T. C. Harveyson

The horticultural stages of a Dendrobe are growth, florescence, maturation, and rest. The treatment during summer—the season of growth—is the most important, as the plant must be sturdily developed to enable it to mature or ripen in the autumn—the season of maturation. That is achieved by giving the plant plenty of checkered sunlight, moisture at the roots, abundant fresh air, and a moderately high temperature during growth. Towards autumn, moisture should be reduced, and the light increased if possible, that adjustment hardening the pseudo bulbs, to enable them to survive the season of rest—the cool period in which water must be withheld from the roots and foliage. That routine will suit the *nobile* group. Early spring will then see the season of florescence at hand, with all plants fairly treated, ready and willing to produce their lovely flowers. Give a complete rest. Slight shrivelling of the pseudo bulbs is beneficial, indicating that moisture is not overdone. It will also ensue that the flower buds will mature their flowers rather than break into aerial growths, which will take place if the pseudo bulbs and foliage are kept wet. When we consider that plants travel up to two months in parcels and cases, responding to the influences of fresh air and moisture when opened up, there is not much fear of plants dying that are rested for a couple of months in the comparatively comfortable conditions of a glass house under supervision.

Generally speaking, the best time to repot Dendrobes is just after they have flowered, as then most species begin to grow. To make a success of potting, it is necessary to use the smaller pot possible. Dendrobes do not thrive in large pots owing to the difficulty of drying them out effectively during the period of rest. Potting material may consist of treefern root, osmunda or todia fibre, charcoal and crocks. Perfect drainage is essential. Personally, I do not use sphagnum in the compost, preferring it as a top-dressing over the other materials.

For Himalayan species and their hybrids, I like a minimum temperature of 45° F. in the winter, allowing the sun to take it up to 95° F or more during summer. Equatorial species from a low altitude require a minimum temperature of 65° F, being affected by sudden changes in temperature, more so than species from a high altitude outside the equatorial zone, which, for Orchid culture, we can reckon as 15° on either side of the equator. These cultural notes, however, are only of general applicability, as many Dendrobes require special treatment, which cannot be dealt with now.

Most of the Dendrobes are readily propagated, which may be done by the division of old pseudo bulbs, allowing them to remain in the pot, when they will shoot from their bases. Some species —*nobile* and *chrysanthum*—can be induced to develop aerials if kept moist during their resting periods. With some species—*nobile*—the pseudo bulbs can be cut into lengths, and placed on damp sphagnum moss, when dormant buds will usually burst into leaf. Pieces with "eyes" can also be potted in fibre and sphagnum, leaving two "eyes" exposed. An old pseudo bulb which has flowered its full length will only shoot from its base. Propagation from seed is the most prolific method, but requires a good deal of scientific technique to make it successful.

The earliest garden hybrid appears to be Dominianum (*nobile* x *Linawinianum*), a Veitchian production flowered in 1864, but a published description did not appear until 1878. Ainsworthii (*aureum* x *nobile*) was flowered and described in 1874, there being now twelve varieties recorded, mainly derived from *nobile* varieties in the parentage. Ainsworthii is an attractive hybrid which has stood the test of time, as it is still listed by commercial nurseries. Special mention must be made of the Colmanian hybrids ,the creations of Sir Jeremiah Colman, of England, which are a particularly fine lot, leaving Orchidology the richer by their existence. Approximately sixty-one hybrids have emanated from Sir Jeremiah Colman's private nursery, the hybrid Lady Colman (*Findlayanum* x *The Gem*, var. *Artemis*) being noted for its size and beauty, while Cybele Gatton Park (*Findlayanum* x *nobile nobilius*) can be recommended for its richness of colour. So popular were Dendrobes and their hybrids in the early days of hybridisation, that, at the end of 1915, no less than 240 hybrids had made their appearance, of which 54 were Colmanian. After that year the interest in Dendrobes and their hybrids rapidly waned, for in the next sixteen years (1931) only thirty-five hybrids were produced, including six Colmanian. At the end of 1933 the number dwindled to ten, and by the end of June, 1936, another fifteen were added to the list, which now has the grand total of 300 hybrids.

The apparent neglect in the raising of hybrid Dendrobes is accounted for by the great progress which has taken place in the production of hybrid Cattleyas, and other elegant forms. But there is no doubt that a swing in favour of hybrid Dendrobes will again take place in the future. In purchasing hybrids, however, amateurs are advised to see the plants in flower before finally deciding upon a choice, owing to the great similarity of many different crosses.

On September 26, 1935, at a meeting of the Orchid Society of New South Wales, Mr. W. Schmidt showed an interesting hybrid from a cross between two Australian species, namely, *Kingianum* x *tetragonum*. The plant carries seven or so spikes, each with eight to ten flowers. Mr. Schmidt informed me that he had sent a plant to Kew Gardens some time about 1914,

(*Continued on page* 20)

Building Up a Collection

J. MURRAY COX, *Brisbane, Q.*

This is a continuation of Mr. Murray Cox's article, which commenced in our last issue.

To successfully build up a collection requires thought and careful selection. To buy haphazardly without knowing what you are ordering is to court disaster in many cases.

Before going in for any variety of orchids, the grower should ask—Do the conditions I have available suit this orchid? If not, can I alter them so that they will? If not, can I afford to go in for them properly? Particularly should such questions be considered before undertaking the culture of such orchids as Lælias, Cattleyas, Phalænopsis, Odontoglossums and Miltonias. It is an extremely wise move to get say, one or perhaps two of these as an experiment, and see how they thrive under the conditions you can give them, before you expend a great deal on them. I am experimenting at the present time with a few Miltonias and an Odontoglossum and, while they are doing well so far, I shall wait at least a twelve month before adding further to their number.

DENDROBIUM FALCOROSTRUM
A choice native species
Photo. by Mr. H. J. R. Overall

To the new grower I would proffer the following advice:—

(1) Become a member, if possible, of an orchid growing society. In Queensland the Queensland Orchid Society offers incalculable benefits to the tyro, and the same applies in New South Wales and in Victoria, where there are flourishing Orchid Societies.

(2) Make acquaintance with other growers in your neighbourhood, and exchange views and opinions with them. My experience has been, that any orchid lover is most willing and anxious to help in every possible way, the newcomer to the cult. In this respect I would like to express publicly the debt of gratitude I feel to members of the Queensland Orchid Society who assisted me in my early difficulties; and I would like to mention particularly my good friend Mr. Frank Hayes, to whom is largely due the credit (or blame) for my infection with the Orchid Virus. Mr. Hayes' willingness to assist new growers is almost proverbial, and I am afraid some of us have rather imposed upon his good nature at times.

(3) If you are a Member of an Orchid Society, make full use of your privileges —opportunities are always available to join in with an order for plants from overseas—or for the supply of potting material, etc. Enthusiastic Secretaries are always quite glad to hear from members in this regard.

(4) Read up on the subject of orchids when-

ever you can—then carefully apply the knowledge you have gained—I say "carefully" because what suits an orchid in one place may mean a funeral elsewhere.

(5) Keep a constant lookout for pests, and deal with them promptly—it is easier to deal with a pest at the outset than later on when it has established itself and spread.

(6) Get your knowledge as cheaply as you can—knowledge bought by personal experience is usually costly—if you can get good advice from an experienced grower, take it.

(7) Remember that orchid-growing is a hobby—don't let it become an obsession or a vice.

(8) Don't neglect our native species, many of which are as choice as any exotic species.

(9) In selecting plants—always take large plants in preference to smaller ones. An extra shilling paid for a large strong plant is good economy.

(10) Don't be too eager to add to the number of the genera you cultivate. I believe that a lot of non-success in orchid culture comes from the fact that we try to grow too many different sorts of orchids requiring different methods of treatment without having the facilities for giving them the properly differentiated treatment they need.

DENDROBIUM AGGREGATUM
Photo by Mr. T. C. Harveyson. Block by courtesy of "The Queenslander"

I do not propose dealing with cultural methods here. These have been, and are being dealt with from time to time by long experienced growers. But there is one phase of orchid culture that I would like to touch on, and that is the value of sunlight. In their natural state, a great number of species are epiphytes, and belong to a class of plants described as "Air-plants" because they derive a great proportion of their nutriment from the atmosphere. In order to manufacture their carbohydrates and other organic material from the air about them they must have sunlight.

In my rambles through the scrubs and over the ranges with the National Parks Association I have observed that invariably the finest growth of epiphytical orchids are found where the sun's rays can reach the leaves, stems and roots of the plants. *(To be Continued)*

Treatment of Newly Imported Orchid Plants

H. TAYLOR, *Belmore, N.S.W.*

At this time of year, with so many plants being purchased from local dealers, in their unestablished condition, or imported direct from overseas, this article, by one of our leading commercial growers will prove of great interest and assistance, especially to the very many newcomers to the Orchid Cult.

● One of the first problems met with by the beginner in Orchid culture is the mode of dealing with his newly-imported plants. As often as not, he visits one of the local dealers and acquires some specimens, and since they are somewhat cheaper, usually purchases those which the dealer himself has just imported from overseas. Home he goes with his booty and pots them up at once, and after arranging them attractively in his house, and giving them copious drinks of water to improve their rather woe-be-gone appearance, sits back to await the flowers. Only too often, this kind of treatment leads to the plants' demise, and the beginner either gives up the attempt in the belief that all this talk of the ease with which Orchids can be grown is piffle, or else, back he goes to the dealer and blames him for the loss of the plants. And this brings me to my first point. Always confess your ignorance of all or any particular kind of plant to your dealer. It is his business to help you and to assist in every way to make your plants thrive. He knows that once you begin flowering your plants, you will be a devotee to the cult for life, and so will remain a good customer. So make a point of doing this if you have not before attempted Orchid culture. It is in both your interests.

Orchid plants usually travel quite well over long distances—far better than most plants—but often they are very dry on arrival, and if not well packed, will be found to have suffered considerably. When opened up here, they must practically start a new life under conditions very different, usually, from the forest home whence they came. Their roots have dried up, and a complete new root system must be developed, and often, too, rot will have commenced in some of the pseudo-bulbs. Thus, a newly-imported plant can hardly be expected to appreciate immediate treatment similar to that given long-established plants. But it is no use treating them with kindness. They probably are overcome with self-pity, and give up the ghost.

Long experience—in the early days based on the method of trial and error—has convinced us that there are several ways of treating newly-imported plants, which will ensure their establishment into strong and healthy members of your Orchid community in the shortest possible time.

CYPRIPEDIUM FAIRRIEANUM

A very pretty species of quite an Oriental appearance.

Photo by courtesy of Mr. John Bisset

Two methods are applicable to Dendrobiums. In the first place, carefully remove all debris, such as moss, lichen, bark fragments, etc., from the plant, and most of the roots—leaving only sufficient to serve as an anchor to hold the plant in its pot. Also remove all decayed pseudo bulbs, being careful entirely to cut away at the bottom those showing signs of rot, as this may spread to the healthy bulbs. Then examine the plant with care for signs of scale or other pests—though with plants imported straight from their natural haunts, there is little risk of finding any. If there is any doubt, wash the plant carefully in a weak nicoteen mixture. The first method is to pot the plant at once in a mixture of Osmunda or Todea fibre and sphagnum moss —less moss than fibre. This should be well chopped up and mixed, and placed firmly in the pot to within an inch of the top, leaving a small depression in the centre to take the plant. After the plant is placed in position, finish off with more finely chopped Osmunda or Todea fibre (Osmunda is best), mixed with live Sphagnum moss—a fair amount of the latter bedded down tightly. The eyes at the bases of the pseudo bulbs must not be covered; it is infinitely better to keep them, say, ¼-inch above the mixture. The new growths will soon start to break away, and later root action will begin again. Until this happens, be very sparing indeed with the water, allowing the plant to subsist more on a moist and humid atmosphere than on moisture round its base.

The second method used by us is to suspend the newly imported plant above a bed of Sphagnum moss. This bed should be not more than an inch deep, and the plant should be suspended an inch above it. This is an excellent method, for the new recruit, particularly, because he cannot give in to his almost overwhelming desire to water the poor plant—at any rate, to excess—and he is able to note at once the commencement of the new root action, when he can pot the plant. The moss bed is always kept moist, and the humidity rising from it fattens the shrivelled pseudo bulbs, and the fact that the plant has no water-holding compost round its base prevents water lodging in the eyes and so rotting them out and destroying the plant. If the plants are hung in a glass house, where the atmosphere is more naturally humid than in a bush house or out of doors, hang them upside-down, as an additional precaution against excess water.

When the moss bed method is used for Dendrobes, the Cypripediums can be started in it, too. Again remove all rubbish, dead and broken roots, leaves, etc., and prop the plants up in the live moss, where they will soon start to root, when they can be potted in the usual "Slipper" mixture.

Cymbidiums, as a rule, are not particularly fussy as to their treatment. Pot them as soon as they have been tidied up as mentioned above, but again, only keep them barely moist, and certainly not wet, till their new roots appear.

Vandas soon start root action if their roots and stems are bound with live moss which is kept moist. If they are treated this way, and hung upside-down, no water will lodge in the top of the plant to cause rot. If the other method is adopted, of potting them at once in moss only, they should be kept in a place where they are not likely to be wet from above. Pot in their proper receptacle as soon as the first sign of root growth is observed, because Vanda roots are fleshy and easily damaged, and they should not be allowed to grow too long before being potted. With Vandas, the old roots often throw off new ones, so do not expect all the first new roots to come from the stem.

Coelogyne cristata is another species which is regarded with favour by beginners—especially after seeing the photo in the last edition of the "Review" of the magnificent plant grown by Mrs. E. M. Mitchell. It is a particularly hard plant to establish, unless it receives correct treatment from the start, but once it firmly roots its first bulbs, it grows with practically no attention whatever. Place this plant on moist moss when many more than the leading bulb will shoot. These new bulbs will probably be small, and their roots few, and these roots must not receive too much moisture or they will rot and the plant will never recover. Don't water in an attempt to fatten the old Indian bulbs, because, with this particular plant, they will probably never fatten at all. Concentrate on making the new roots develop, so that the second season's bulbs will be of flowering size.

These few genera are those usually adopted by the beginner, for whom these notes are primarily written. Cattleyas and the many others have been omitted, because those who grow them are usually sufficiently experienced—or inexperienced—to ask for cultural directions.

The Genus Dendrobium

(*Continued from page* 16)

but could not tell me whether it had been recorded in their annals or not. Mr. Schmidt called the hybrid, Ellen, in honour of his daughter. It is worthy of note that the pseudo bulbs were like those of *Kingianum,* while the flowers approximated those of *tetragonum.* From the horticulturist's point of view, the flowers were more attractive than those of either of the parents. The hybrid is not mentioned in Sanders' Hybrid list.

A complete monograph of the Genus DENDROBIUM would be a wonderful production, but it awaits the genius with plenty of patience, time, and money, and with no thought of honour or profit from his undertaking.

(*To be continued.*)

Editor's Note

● The delay in production of this issue is regretted, but was due to causes beyond our control. Four issues will appear during 1937, as usual.

The Dendrobiums bigibbum and phalaenopsis

"MARMAN," *Cairns, Q.*

● Now that the Dendrobium bigibbum is flowering (1/3/36), it may be of interest to record the variations of colour, shape of flowers, growth and locality from which the various forms are obtained.

In the Queensland Flora, by F. M. Bailey, the album, albamarginatum, phalaenopsis and phalaenopsis forma venosum are all varieties of bigibbum. In Sander's Orchid Guide, D. bigibbum, D. Phalaenopsis, are shown as separate species with D. superbum as a variety of D. bigibbum, and D. Schroederianum as a variety of D. Phalaenopsis, with a further species of D. staterianum. This shows eight distinct forms.

In the collections of Mr. W. Tierney and Mr. G. Bates are a number of forms, but to try and identify each species from book descriptions only leads to confusion and dismay, with a headache thrown in. Species not described are worth describing, as their characteristics are well worthy of mention, and I shall deal with them as I come to the locality from which these forms appear, and possibly some reader may identify them.

From Cooktown to Coen the variety phalaenopsis may be obtained. This is a pleasing heliotrope colour with a labellum of mauve colour. The colour, growth and size of flowers vary with the locality. North of Coen the D. bigibbum begins and extends right to Cape York and the surrounding islands. Its colour varies, but is usually much paler than phalaenopsis. These two are readily distinguishable, as the claw-like end of petals in D. phalaenopsis is missing in D. bigibbum, as also the labellum of D. bigibbum is marked with a white mark, whereas in phalaenopsis it is not conspicuous, and in some entirely absent. I have not seen any pure white forms, so do not know whether the petals are of phalaenopsis or bigibbum.

On Hawkesbury, West and Christmas Islands various forms and shades appear.

Here phalaenopsis and bigibbum seem to merge into one another, as colours are intermediate between the two; some boast the white throated labellum of bigibbum with the clawed petals of phalaenopsis. On these islands appear the albamarginatum flower, much like the bigibbum type, but the stems are not unlike D. superbiens and not the average growth as on the mainland.

One would think that at some time or other a cross has occurred here between D. superbiens and bigibbum and the resultant plant bears the stems of D. superbiens and the flowers of D. bigibbum. Another form has large thick stems, long racemes and many flowers of various shades and sizes, much like the bigibbum type, but the petals and sepals curl backwards, which is very noticeable and peculiar, and it would be interesting to know from which cross these characteristics were obtained. Yet another form occurs here which is outstanding: Intermediate growth, very sturdy, flowers bunched together on top of raceme, deep mauve coloured, labellum dark, but white throat is streaked and quite distinct. I have just been advised that a pure white form has been found on Hammond Island.

On Tuesday, Wednesday, Friday, Hammond, Horn and Prince of Wales Islands, the colours and growth vary considerably, and many forms have very pale petals and sepals and dark labellums, and are difficult to distinguish between the phalaenopsis and bigibbum. Here also a dark form of curled petals and sepals occur on long stems and long racemes. On these islands the stems are very long, some attaining four feet in length, of various shapes, although it is noticeable that the long thin stems have many large flowered racemes (as many as sixteen flowers on raceme). Here also occurs the very pale form, and all uniform in colour. All have the labellum of bigibbum, but all have not the petals of bigibbum, some having the petals of phalaenopsis.

The questions arise as to where D. bigibbum originated, and is D. phalaenopsis a distinct species? It is very noticeable that D. phalaenopsis begins to flower about March, continuing to July, when D. bigibbum begins and continues to September. By the foregoing it would appear that D. phalaenopsis and D. bigibbum are two distinct species and the others are merely crosses between the two, except albamarginatum, which appears to be the cross between bigibbum and superbiens.

Raising plants from the seed of the various forms would go a long way to discover from whence these forms originated. Has any reader tried?

Many people in Cairns have asked me what is the best way to grow this type of Orchid. From my observations, I find that providing the roots are kept cool, they will grow either in a pot with peat, or on a living tree where they get light, and not necessarily direct sunlight. I have a number growing beautifully on Frangipanni trees, lemon trees, orange trees, and in pots, but the living trees are the best. Many grow on palm trees with equally good results. It is erroneous to think that they will only flower in the broiling sunlight; good flowers of good colour are readily obtained where the sunlight filters through the leaves of an orange or lemon tree or through the top of the bush house.

Visit of Mr. E. W. Cooper

Mr. E. W. Cooper, of Sanders & Co. Ltd., St. Albans, England, the well-known Orchid firm, who visited Australia early last year, attended, by invitation, the January and February meeting of the Orchid Society of New South Wales. The various matters discussed at the meetings have been divided into groups and are set out in the form of question and answer. Mr. Cooper here deals briefly with the subject of

ODONTOGLOSSUMS

● *Question.*—How do you succeed with Odontoglossums in England?

Answer.—It is possible to grow them successfully if the surrounding conditions are right. If the conditions are wrong, no amount of attention seems to produce good results. I know of plants in Scotland which grow and flower profusely, whereas with us at St. Albans they will make only small bulbs and do not flower too well. Plants flourish in certain parts of the North of England which will not grow in any other part except Cornwall and Devon.

One of the species grows, in its natural state, in Bogota, South America, in a gorge on the side of a range of snow-capped mountains with sweltering tropical heat at the base. This is typical of the conditions under which they thrive, and these factors produce an almost perpetual mist as the hot air from the plains meets the cold air from the mountain tops. It is these conditions you should endeavour to reproduce—never hot, never cold, never dry, never wet. Only a Scotsman can live in those conditions. In the Thames Valley I do not know of a single plant that is growing really well. In other parts there may be occasional growers who can attend to their plants all day. They are in and out of their glass houses, constantly attending to atmospheric conditions. They probably succeed. In Scotland the conditions are very suitable. In fact, one grower said to me, "I open the doors, I open the windows, and then go out and smoke my pipe."

In Melbourne, I inspected several collections of Odontoglossums, but none of them are really good, although some plants on the shady side of a house were flourishing moderately well. One grower has them in a bush house, but intends to put them back into the glass house during the winter. In the bush house they are improving because there is the necessary shade and yet sufficient light, air without draught, moisture without wetness, which they like, and there is not the necessity for constant watering and drying, as the circulating air prevents the long retention of wetness. Start quietly and experiment in a very small house or corner until you get the secret.

Question.—The atmosphere here is mainly dry. I have tried them in every position and every way possible. They grow like mad, make huge growths, and then the back bulbs start to rot, and then I throw the plants out.

Answer.—You have probably given them too much water, in which case the back roots tend to rot and then the first disease that comes along affects those plants. The Odontoglossum likes plenty of moisture, but objects to wet feet. You must alter that atmosphere to suit the plant. I have given this matter considerable thought, and believe that during summer, at any rate, the bush house is the solution of the problem here. I wish I could help you more in this matter, but I would want a year's study of the conditions here before I could begin to experiment.

I have frequently heard the climate here and in Melbourne contrasted. One with whom I have discussed this subject had spent 35 years of his life in Victoria and New South Wales, and affirmed that, whilst it is true that the climate in Melbourne is generally colder than that of Sydney, it is a great mistake to imagine that Melbourne has a moist climate. It is not so; in fact, it is very much drier. The average rainfall in Melbourne is stated to be about 21 inches, which is only half that of Sydney, in addition to which the humidity of Sydney is very high. The plants which require humidity do much better in Sydney out in the open than they do in Melbourne.

Dendrobium Wardianum

T. C. JAMES, Longueville, N.S.W.

● *Dendrobium Wardianum* is a very beautiful Orchid, especially the form "giganteum," which hails from India.

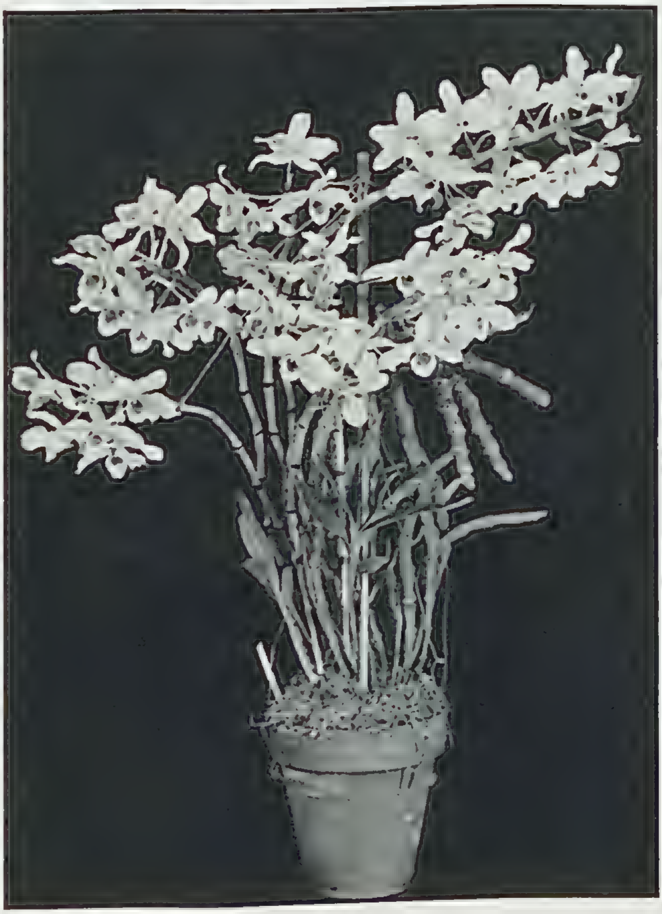
When I first attempted to grow this species, many here, who have tried it, told me that it was particularly cranky and would prove a failure.

To my pleasant surprise, it has turned out quite the reverse, and I believe that most of the failures I heard of were due to the fact that the plants received hot house treatment.

I grew mine last year in a bush house, and the growth was excellent and the flowering abundant, as the photograph with this article will show.

This year I am growing them quite outside under the shade of a tree fern, and they have responded well.

One of my plants is in a basket, and another in a pot. The basket culture has given definitely better results, and I propose to transfer several other Dendrobiums this year to baskets for testing purposes.



DENDROBIUM WARDIANUM

Photo by courtesy of Mr. T. C. James

This Dendrobe has a pendulous habit, and therefore the pseudo bulbs should be allowed to hang down and not be tied upright. To that end the baskets or pots should be suspended by their sides. With my plants, the growths which were tied up matured thin, whereas those that were allowed to hang in their natural position matured thick and knobby.

Our President, Judge Markell, some time ago, transferred his plants from the glass house to trees in his garden, and they have improved considerably. Another of our members, Mr. T. Nelson, of Mosman, exhibited at a recent meeting of the N.S.W. Society, a plant which had been started in the glass house, but, as it was not prospering, had been placed outside on a fence. The improvement was immediate, and the point from which that improvement started was definitely marked. I might add that Mr. Cooper, of Sanders, England, advised that all Orchids with a pendulous habit should be permitted to grow naturally, which would induce better growth and larger flowers.

In a previous article I mentioned that I had placed a number of plants of this Dendrobe on trees at my Mountain home. In spite of a severe winter and then nine months of drought, there are quite a number of new growths now about 12 inches long and still growing, and they are rooting well.

In the circumstances, I would strongly recommend growers to cultivate this Dendrobe extensively, but out in the open.

A North Queensland Orchid Hunt

LOUIS H. JEZARD, *Proserpine, Nth. Qld.*

● In the July-September issue of the "Australian Orchid Review," it was very interesting to read the account of an orchid hunt in N.S.W. by some members of the Orchid Society. Up here in North Queensland we have some very interesting trips which, no doubt, members in other States would like to hear about. There is so much country where probably Orchids have never been looked for, and so it is that on every trip we make, something new comes to light. I will give a description of a recent week-end trip we made, climbing Mt. Dryander, which is densely covered with vegetation and virtually an Orchid hunter's paradise.

The mountain is situated 20 miles north of the town of Proserpine, being mid-way between Proserpine and Bowen. The party consisted of Messrs. Arthur Parker, W. Foxlee, H. Butler, and the writer, all of whom are keen enthusiasts of Orchid cult, thus making the trip very interesting. We left Proserpine by car on Saturday afternoon at 3.30 o'clock on the 20-mile journey to the foothills of Dryander, reaching same about 4.30 p.m., and after drawing the corks from a few bottles of lemonade (?), to give us the climbing spirit, we then commenced on a very long and tiring climb on an upgrade of approximately 10 miles, which took exactly seven hours, broken by our night's camp. Once in the main Dryander Creek, we followed the course, all eyes upward and everybody eager to find something. In the more open parklands and forest country, we encountered *Geodorum pictum, Ornithochilus Hillii,* and two *Cleisostomas, brevilabre,* and a new species named by Rev. H. M. R. Rupp in 1934, *orbiculare;* and later we came across *D. gracilicaule* and *tetragonum,* which literally covered every tree we passed. The pseudo bulbs of *D. undulatum* drooped from the overhanging branches from seven to nine feet, finished with their brown and golden blooms, which, no doubt, was a beautiful sight, as also were the *Cymbidium suave* in vast numbers.

From then on the dark shadows of night were beginning to fall, and another half mile brought us to the foot of a large waterfall where water was still running freely, despite the fact that no rain had fallen since April. However, we could proceed no longer, so a big camp fire was made and the billy boiled, and what with a big, hearty meal, it put a fitting finish to the first section of our climb. I might mention, also, it was interesting to watch the wild scrub turkeys and mallee hens and various reptiles all filing down for their evening drink; then finally we got settled down on a bed of rock (which was a little different from an air cushion, I must say). All went well during the night, except for an occasional screech of some night bird, which would awaken one with a start, and so a peaceful night was spent with giant pine trees all around us.

Next morning there was no sleeping in, as the billy was boiling at 4 a.m. and everybody awakened with a wonderful appetite, full of enthusiasm and ready for the rest of the climb. Breakfast once over, we then proceeded on the hunt. Most of the heavy packs were left at the camp, to be picked up on our return in the evening, so travelling light, the Orchid hunt commenced in earnest. The next find was a variety of *D. teretefolium* and *D. Mortii,* two of the Pencil Orchids, which we found growing abundantly. In the way of ferns were: Davallia (Hare's Foot), Alsophila Australis (Tree Ferns), Platycerium grande (Stag Horn), Platycerium alicorne (Elk Horn), Asplenium simplicifrans (Narrow-leaved Bird's Nest Fern), Nidus (Bird's Nest Fern), Lycopodium phlegmaria (Tassle Fern), Nephrotepsis (Lace Fern), and Polypodium species, and numerous varieties of ground ferns. After we climbed four waterfalls we had gained considerable height, and it was then we came across D. speciosum in great clumps, growing both in trees and on the basalt rocks in hundreds. We reached our destination, the summit of Mt. Dryander, at 10 a.m., thus completing our climb in seven hours. We decided to spend two hours on top, so after a hurried lunch we made our way along the top and found some patches of *Calanthe veratrifolia,* all of which were in bloom, also *Liparis nugenter* growing in abundance, and some very nice specimens were collected. Others seen there included: *Cymbidium iridifolium, Bulbophyllum McPhersonii,* and a couple of *Oberonias, iridifolium,* and the rare *Titania.* We did not spend one-tenth of the time we would have liked to, hunting on the summit, as being pressed for time we had to make our way down the long creeks towards home. Just a few hundred yards from the top we saw eels four feet long swimming in the rocky pools, and also small fish. Another item of interest was an old inscription in the basalt rock which resembled very much

Taeniophyllum Muelleri, Lindl.

FRED. FORDHAM, *Brunswick Heads, N.S.W.*

● A few colonies of these tiny plants have been found growing on stunted, lichen-covered "Paper-barks," Callistemon salignus, beside a backwash of the Brunswick River, on the Far North Coast of New South Wales.

The position of the plants allows them to enjoy a fair share of full sunlight for the greater part of the morning. For the remainder of the day, only filtered sunshine is available.

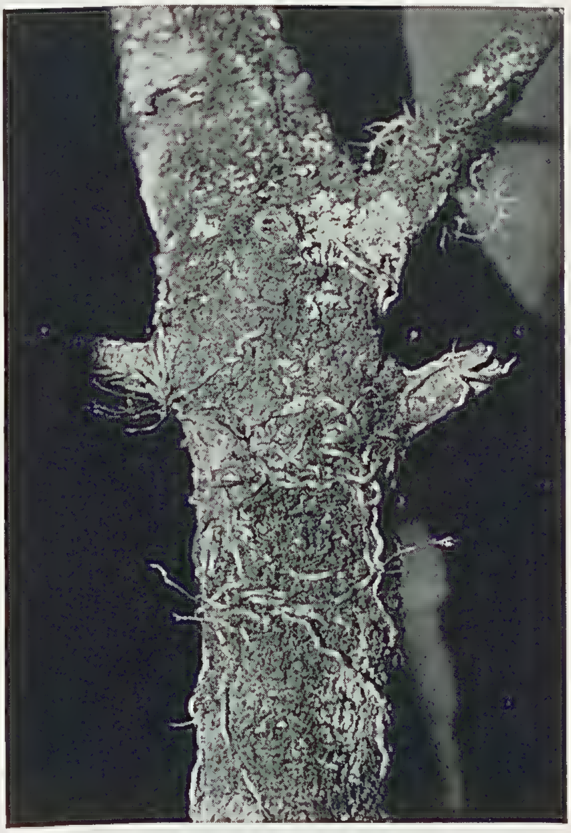
An interesting feature of the growth of Taeniophyllum here is its closeness to the ground. No plant has been found above seven feet from the soil.

One naturally seeks a reason for this. Is it in order to secure pollination by ground insects, or is it because the atmosphere is moister?

Practically every flower is fertilised. When one remembers the microscopic size of the flowers, one can hardly visualise a nectar-seeking insect small enough to make its way into the tiny opening, and continued observation has failed to discover any such insect. This, coupled with the fact that plants removed to bush houses some distance away have continued to produce seed pods in quantity, suggests that the flowers are self-pollinated, and are not dependent upon insects.

Growing, as they do, on trees so close to a river backwash, the soil beneath these tiny Orchids is, of necessity, very moist. Hence the atmosphere surrounding the lower parts of the trees is more humid than that about the branches. The plant needs this humidity, for there is no moss on the "Paperbarks" to retain any moisture. The root surface exposed to the air is relatively large for so tiny a plant.

These conditions are readily duplicated in a bush house, where the plant thrives on the paperbark, even after it has been cut for months.



TAENIOPHYLLUM MUELLERI, LINDL.
Photo by courtesy of Mr. F. Fordham

Thus it would appear that its low position on a tree, growing in such a damp place, is due to the requirement of a regular and plentiful supply of moisture.

"Tinyophyllum," as it is often called, must indeed be one of the smallest Orchid plants in existence, for it is only a point from which the roots and racemes radiate.

The accompanying photograph shows a colony of several plants, six of which are throwing racemes in various stages of growth. The single raceme on the right is just under an inch in length.

---

the old Egyptian inscriptions I have seen in the British Museum in London. We arrived at the bottom of the mountain at 6 p.m., very tired and weary after the strenuous day, but nevertheless it was a wonderful week-end, and we shall look forward, when time permits, to spending a few days up there again in search of Orchids, as we are certain there is something new to be found, since, according to natural history, it is 70 years since the botanist, Mr. FitzAllen, with a party of surveyors, explored Mt. Dryander. Mr. FitzAllen, at the time, was greatly impressed with the Orchids growing there.

More about Rhytida Strangei

R. M. STEWART, *Neutral Bay, N.S.W.*

● Great interest seems to have been aroused by Mr. H. J. R. Overall's article in the last issue of the "Review" on this subject, and the following notes of observations made by one who realises the great value a collection of these little animals would be in the glass house are put forward in the hope that they may prove of additional interest to readers.

Having read Mr. Overall's article, I kept my eyes open for these snails, having had a dim recollection of having noted their distinctly different appearance from the ordinary garden snail when killing odd ones from time to time, being then quite unaware of their virtue. Sure enough, I managed to amass a collection of three of them which I placed in a large pot containing loose soil and with a sheet of glass over the top. These three were found amongst ferns in the rockery in the glass house in very moist surroundings, and though intense search was made with an electric torch round the outside garden in all the most usual haunts of the snail, no further trace of them could be found. Some time ago I spent a couple of years on the North Coast of N.S.W.—at Bellingen—and think I remember seeing many of these snails or flat chaps closely resembling them, not only in the scrubs, but in the gardens there, and since many of my ferns came from the North Coast, the snails I captured may have survived amongst them. Perhaps some of our North Coast readers can verify their presence in their districts in numbers—and possibly send a few to Sydney.

My three captives were fed on snails, of course, and it was found that they would each eat one large snail in two nights or a small snail per night. They would always tackle the small snails in preference to the big chaps. The glass top was a great idea, because it enabled close inspection of their goings-on under a strong magnifying glass—and they would often oblige by performing on the glass itself. Their method of attack was to approach the escaping garden snail and bite it on its extended body. This would cause the victim to withdraw into its smell amidst much froth and so cease moving. The Rhytida would then taken up a position on the larger snail's shell in front and whenever its meal protruded its body, it would be bitten or stung again. The Rhytida would carefully choose a tender spot, waving its long body backwards and forwards until it was ready to strike, when it would protrude a fine set of tiny white teeth and take a nip. After two or three attempts it would get a firm hold and would have its body drawn entirely within the other snail's shell when it would not emerge for two days with most of the victim eaten out. It would then bury itself in the dry soil for another day or sometimes two and remain there in a dormant condition until hunger set in again. And so it went on for the two months I had them. After each meal the Rhytida would grow a band of new shell round the opening of its home and so would steadily increase in size.

Since snails are possessed of both male and female organs, I was hopeful of increasing my stock, but I presume they were too busy with their meals to take on domestic cares. I have now released them again in the rockery where their natural food is definitely scarce, fortunately, and if any increase in number is noted, some will be transferred to the garden where they are much needed.

I endeavoured to vary their diet to include slaters and slugs, but they seemed to prefer to fast rather than tackle either of them. Both the large yellow slug—that filthy brute whose slime it seems impossible to remove—and the much smaller grey chap were served up, but no attempt was made by the Rhytidas to touch them, though they were without other food for a week.

Incidentally, I have found another potential menace in the near vicinity of my glass house, and wonder if any reader can identify it. This is a small snail with a cone shaped shell about ⅛in. long, having an opalescent sheen and ranging in colour from pale blue to pale green, with an occasional pink one. In fact, they seem to be almost identical in shape and colour with those the kiddies find on the beaches and thread into necklaces. The only place I have found them so far is in a shady corner amongst dry leaves under a Bignonia vine. What are they, and are they dangerous to plant life?

Notice to Contributors

● Contributions, both of articles and photographs, are always welcomed by the "Review," and readers are urged to submit matter for publication. A plant which interests you is bound to interest others, and remember, too, that a beautiful bloom is always well worth photographing.

Epidendrums in Australia

G. HERMON SLADE, *Manly, N.S.W.*

Epidendrum, one of the largest genera of all flowering plants, is the second greatest genus of Orchids, being exceeded in numbers by *Dendrobium* only.

In America, *Epidendrums* to a large extent replace that position which is occupied by the genus *Dendrobium* in the eastern hemisphere. *Epidendrums* are found throughout the whole of Tropical America in which epiphytic Orchids exist, and show a tremendous variation in vegetative form and structure, colour and size of flowers. There are at least 500 species, many of them inconspicuous, but such a large number are so beautiful and well adapted to growing in the climate of Sydney, that they should be in overy Orchid lover's collection.

Professor Oakes Ames, the eminent American orchidologist, divides the genus *Epidendrum* into three divisions—*Euepidendrum, Encyclium* and *Barkeria.* The three divisions have entirely different appearances vegetatively, but they all agree in having the lip of the flower more or less connected, or at least parallel to the column. It is this fact that makes any *Epidendrum* very easily recognised.

The *Euepidendrum* is the largest division of the genus; these plants generally have tall leafy stems like those of *Renanthera*—they grow often to several feet high, and in the various species have different but a fairly large number of leaves, eventually ending in a terminal (rarely lateral) scaly raceme of usually very brightly coloured flowers. Well-known examples of this division are found in *Epidendrum radicans,* and the two hybrids *Boundii* and *O'Brienianum.*

In the second division, *Encyclium,* the pseudo bulbs are more decided, short and pear shaped, rarely exceeding six inches in height, and terminated by two or more, although few, often large leaves. Others are remarkably like a *Cattleya.* There are some beautiful species in this division, but generally they are not so well known in Sydney gardens as the *Euepidendrums. E. atropurpureum,* and the very beautiful *vitellinum majus,* are two beautiful *Edidendrums* typifying this division.

The third division, *Barkeria,* forms a very distinct group, which in horticultural nomenclature are generally called *Barkerias* instead of *Epidendrums.* So far as is known to the writer, none have, as yet, been grown in Sydney, although the flowers are colourful, large and decidedly beautiful.

Section Euepidendrum

The best known plants in Australia at present, belonging to the *Euepidendrum* division, succeed with remarkable ease and vigour when grown out of doors in rock-pockets in Sydney. They increase at a surprising rate by producing growths near the base, and also numerous young plants from the old flowering stems. They are almost continuously in bloom, and their bright colour makes them decidedly attractive. They are so easily grown that every flower lover, whether an Orchid grower or not, should include a few of these plants in the open garden —they need no attention, provided they are so placed in good sandy soil in a fairly sheltered position and exposed to plenty of sun. The flowering raceme usually lasts 4-5 months; they have been reported as flowering continuously for two years!

Epidendrum radicans is a brilliantly colourful species, and is possibly one of the most beautiful in this division. It produces long scandent stems, often reaching four to eight feet high, and the enormous number of white roots which emanate from the entire length of the stem give the plant a most peculiar, yet attractive, appearance. The tall stems eventually terminate in a large head of flowers, which are individually about two inches across and of an intense orange-scarlet colour. The flowers of this particular species produce their lip lowermost, as most other Orchids do, but differ in this respect from the two hybrids described below.

E. O'Brienianum is a hybrid which has been obtained by crossing *E. evectum* and *E. radicans;* it is exceptionally easy to grow, and is already well known in Sydney gardens. Its flowers are crimson-red with a yellow blotch on the lip, and is a continuous bloomer. In this hybrid the labellum is always turned towards the centre of the elongating raceme. The plant often grows three to four feet high, and requires plenty of sun.

E. Boundii is a very beautiful hybrid which was raised by Sir Jeremiah Colman and named by him after his gardener, Bound. It is a decided improvement on *E. O'Brienianum;* its flowers, which are of heavier texture, are of a uniform bright orange colour, while the lip is slightly more of an orange-yellow colour. Its stems appear to be somewhat shorter than *E.*

O'Brienianum, but they are thicker and more sturdy.

E. Lilac Queen is another hybrid raised by Sir Jeremiah Colman, and is growing very vigorously out of doors, although it has not flowered as yet. It is a remarkable plant, obtained by crossing *E. Boundii* with *E. Stamfordianum.* Its female parent is a small growing plant; in vegetation, much resembling a *Cattleya*, and which produces its flowers from the base of the pseudo bulb. Notwithstanding this, *E. Lilac Queen* grows to a height exceeding even *E. Boundii*, and terminates in a dense raceme of flowers varying in colour from pure white through various shades of lilac, and even maroon ones have been obtained—it is a very interesting hbyrid.

Section Encyclium

In this division, only a few plants have been imported as yet; the best known is *E. atropurpureum*, which has small pear-shaped pseudo bulbs which terminate in large thick leaves 18 to 20 inches long. The flower spike, which is often branching, consists of numerous rather widely spaced flowers, 2½ inches in diameter. The sepals and petals are broad, and of a warm green colour suffused with purple, while the lip is pure white, beautifully pencilled with bright purple. The apex of the column is in remarkable contrast to the remainder of the flower, and is a clear bright orange-yellow colour. In its native country this plant is called "dragon's mouth"—a name which aptly describes it.

E. prismatocarpum is well represented in the Sydney Botanical Gardens collection, and is always in flower from about February and March —it is decidedly pretty and distinct.

E. vitellinum majus is a most outstanding member of the genus, being a beautiful bright red colour, and needs cooler and shadier treatment than most of the species. In England this is grown with *Odontoglossums;* its bright flowers, which are in contrast with the paler colours of the *Odontoglossums*, make it an ever-popular favourite. It cannot be said to be nearly as easy to grow as other *Epidendrums* in Australia, but will reward the cultivator who spends a little time to find out its exact needs.

Epidendrums are not the largest flowering Orchids by any means, but they have a charm all of their own, especially in beauty of brilliant and uncommon colourings. Extreme ease of cultivation should make them popular with every lover of plants. Always try to grow *Epidendrums* out of doors, as most of this genus succeed much better in this way than when pampered in a glass house.

Census of North Queensland Orchids

Compiled by North Queensland Naturalists' Club

Figures after Plants Indicate Observed Flowering Months

The following list of North Queensland Orchids has been prepared for general information. Criticism is freely welcomed. The vernacular names represent as far as is desirable those in common use, and Mr. W. H. Nicholls has kindly suggested many of the others. Additional recordsand suggestions for amendments and variations or additions would be gratefully appreciated.

Microstylis. *Nutt.*

- congesta. *Reichb. f. Mignonette Orchid.*
  - *Smithfield Ra. (Flecker)*
  - *Gordonvale (Bates)*
  - *Mt. Fox (Glindeman)*

Oberonia. *Lindl.*

- pusilla, *Bail*, 4.
  - *Up. Mossman R. (Flecker)*
  - *Maalan Rd., Ravenshoe Dist. (Flecker)*
  - *Bellenden Ker,* 4000 *ft. (Bail.)*
- iridifolia, *Lindl. Iris Orchid.* 5.
  - *Pine Cr. (Flecker)*
  - *Ingham (Hunter)*
  - *Mt. Fox (Glindeman)*
  - *Proserpine (Macpherson)*
- Titania, *Lindl. Soldier's Crest Orchid.* 4, 6, *to* 8.
  - *Kuranda (Flockhart)*
  - *Gordonvale (Bates)*
  - *Proserpine (Macpherson)*

Liparis, *Rich.*

- Nugentae, *Bail. Robust Liparis.*
  - *Ra. nr. Cairns (Bail.)*
  - *Mt. Dryander (Macpherson)*
- cuneilabris, *F. v. M. Golden Liparis.* 4.
  - *Up. Mossman R. (Flecker)*
  - *Mourilyan Hr. (Stuart)*
  - *Rockingham B. (Dall.)*
  - *Mt. Fox (Glindeman)*
- habenarina, *F. v. M. Small Flowered Liparis*
  - *Dunk I (Banfield)*
  - *Rockingham B. (Dall.)*
  - *Mt. Fox (Glindeman)*
  - *Proserpine area (Macpherson)*

Dendrobium, *Swartz.*

- bigibbum, *Lindl. Crested Dendrobium.* 8.
  - *Batavia R. (Bail.)*
  - *West I. (Macgregor)*
  - *Hammond I. (McDermott)*
  - *Thursday I. (Miss Braine)*

Mt. Adolphus (Thomson)
var. Georgei, *White.*
(?) Dayman I. (White)
Phalaenopsis, *Fitzg. Cooktown Orchid, 3 to 9.*
Mitchell R. (Bates)
Laura (Bates)
Maytown (Bates)
superbiens, *Reichb. Superb Dendrobium. 5.*
Is. of Torres Str. (Bail.)
West I. (Macgregor)
Fitzgeraldi, *R. Br. Golden Orchid. 7 to 12.*
C. York (Daemel)
Albany I. (Gregory)
Endeavour R. (Bail.)
Woody I. (Macgregor)
Buchan Pt. (Flecker)

DENDROBIUM PULCHRUM

A New Guinea variety. The Labellum is red blotched and the flower is of striking appearance

Mt. Fox (Glindeman)
Palm I. (Herbert)
Pt. Denison (Fitzalan)
Proserpine (Macpherson)
var. Broomfieldii, *Fitzg.*
Bowen (Bail.)
fuscum, *Fitzg. Tawny Dendrobium.*
Magnetic I. (Goadby)
Gouldii, *Reichb. Gould's Dendrobium.*
var. acutum, *Reichb. f.*
Thursday I. (J. J. Smith)
monophyllum. *F. v. M Golden Lily of the Valley Orchid.*
Harvey Ra. (Goadby)
Tofftii, *Bail. Regal Dendrobium.*
Bailey's Cr. (Bates)
Daintree R. (Bates)
Russell R. (Bates)
Waugh's Pocket (Bates)
Nind's Cr. (Tofft)
Johannis, *Reichb. f.* 8.
West I. (Macgregor)
Cooktown (Bail.)
Annan R. (Bail.)
speciosum, *Sm. King Orchid.*
Bellenden Ker (Bail.)
Proserpine area (Macpherson)
fusiforme, *Bail. Silver Orchid.*
Herberton (J. F. Bail)
Mt. Fox (Glindeman)
tetragonum, *Cunn. Tree Spider Orchid, 5.*
Rockingham B. (Dall.)
Proserpine (Macpherson)
aemulum, R. *Br. White Feather Orchid.* 8, 9.
Barron R. (Bail.)
Bairdianum, *Bail. Baird's Dendrobium,* 12, 1.
Bet. Herberton and Mourilyan Hr. (Stuart)
Mt. Fox (Glindeman)
gracilicaule, *F. v. M. Yellow Speckled Orchid.* 6.
Barron R. (J. F. Bail.)
Atherton Tablel. (Bickerton)
Proserpine area (Macpherson)
Adae, *Bail. Trim Orchid* 9.
Herberton (Bail.)
Mt. Bartle Frere (Pearson)
Mt. Fox (Glindeman)
Stuartii, *Bail. Stuarts' Dendrobium.*
Herberton (Bail.)
agrostophyllum, *F. v. M. Golden Bells.*
Burrow's Cr. (Flecker)
Cairns (Fitzalan)
Josephine Cr. (Bates)
Mt. Fox (Glindeman)
Baileyi, *F. v. M. Bailey's Dendrobium.*
Rockingham B. (Bail.)
Keffordii. *Bail. Leafy Spider Orchid.* 5.
Gordonvale (Bates)
Johnstone R. (Bail.)
Mt. Fox (Glindeman)
canaliculatum. *R. Br. Onion Orchid.* 8, *to* 10.
Endeavour R. (B. and Sol.)
Black R. Cr. (Goadby)
Rockingham B. (Dall.)
Proserpine (Macpherson)
Bowen (Macpherson)
Smilliae, *F. v. M. Bottle Brush Orchid.* 9.
Moa I. (Macgregor)
Cooktown (Bail.)
Pine Cr. (Flecker)
Mt. Fox (Glindeman)
ophioglossum, *Reichb.*
Gordonvale (Bates)
hispidum. *Rich.*
Rockingham B. (Dall.)
Taylori. *Fitzg.* 2, 5, 9, 10.
Bloomfield R. (Taylor)
Root's Cr. (Carr.)
Gordonvale (Bates)
Herberton (Bail)
Mt. Bartle Frere (Flecker)
rigidum, *Nut Leaf Orchid.*
Endeavour R. (B. and Sol.)
The Daintrees (Bail.)
Pine Cr. (Tierney)
linguiforme, *Swartz. Rock Tongue Orchid.*
L. Barrine (Flecker)
Harvey Ra. (Goadby)

Proserpine Dist. (Macpherson)
teretefolium. *R. Br. Tendril Orchid.*
var. fasciculatum. *Rupp. Snowy Tendril Orchid. 7 to 9.*
Kuranda (Fitzpatrick)
Cairns (Bail.)
Isabella Falls (Flecker)
Palm I. (Herbert)
var. album. *White.* 10.
Cairns (Henson)
Mortii. *F. v. M. Slender Pencil Orchid.* 3.
Bowen Dist. (Macpherson)
bifalce, *Lindl.*
Saibai I. (Hartmann)
Johnsoniae, *F. v. M.*
C. York Pen. (Kranzlin)
Fleckeri, *Rupp et White.*
Up. Mossman R. area (Flecker). 1, 9.
Bulbophyllum, *Thou.*
lichenastrum, *F. v. M.* 7.
Cairns (Bail.)
Seaview Ra. (Dall.)
Ingham (Glindeman)
nematopodum, *F. v. M.*
Rockingham B. (Dall.)
Baileyi, *F. v. M.* 11.
Mt. Bartle Frere, (Mrs. L. C. Smith.)
radicans, *Bail.*
Ra. nr. Cairns (Nugent)
Shepherdii, *F. v. M.*
var. intermedium. *(Bail.) Nich.*
Hinchinbrook I. (Soutter)
aurantiacum. *F. v. M. Orange-flowered Orchid.*
var. Wattsii. *Bail.*
Freshwater Cr. (Nugent)
Herbertson Dist. (Watts)
Mt. Fox (Glindeman)
exiguum, *F. v. M. Fairy Cloud Orchid.*
var. Dallachyi. *Benth. Large Fairy Cloud Orchid.*
Rockingham B. (Dall.)
Toressae, *Bail. Boat-leaf Orchid.*
Up. Mossman R. (Flecker)
Whelanian Pools (Bail.)
Prenticei. *F. v. M.*
Bellenden Ker Ra. (Bail.)
punctatum. *Fitzg. Spotted Bulbophyllum.*
C. York (Fitzg.)
Bowkettae, *Bail.*
Herberton (Bail.)
Macphersonii, *Rupp,* 11.
Herberton (Bail.)
Malaan Rd., Ravenshoe Dist. (Flecker)
Proserpine Area (Macpherson)
cilioglossum, *Rogers et Nich. Hairy Tongue Bulbophyllum,* 3.
Mt. Fox (Glindeman)
Cirrhopetalum, *Lindl.*
clavigerum, *Fitzg.*
C. York (Fitzg.)
Pine Cr. (Flecker)
Eria, *Lindl.*
Fitzalani, *F. v. M.*
Buddabadoo, Mitchell
australiensis, *Bail.*
Johnstone R. (Bancroft)
eriaeoides, *(Bail.) Rolfe. Scaly Orchid.*
Mt. Fox (Glindeman)
Phreatia, *Lindl.*
limenophylax, *Reichb. f. Mesembryanthemum Orchid.* 1, 2.
Roots' Cr. (Carr).
Rockingham B. (Dall.)
Ingham (Glindeman)
robusta, *Rogers. Robust Phreatia.*
Cairns (Beck)
Spathoglottis, *Blume.*
Paulinae, *F. v. M.* 7
Bradshaw's Siding (Flecker)
Soutteriana, *Bail*
Kuranda (Flockhart)
Kamerunga (Cowley)
Stoney Cr. (Nugent)
Phaius, Lour.
grandifolius, *Lour. Great Swamp Orchid.* 8, 9.
Butcher's Cr. (Miss Walsh)
Rockingham B. (Gunn.)
var. Rowanae, *Bail.*
Murray R. (Mrs. Rowan)
Pholidota, Lindl.
imbricata, *Lindl. Banana Orchid,* 5.
Johnstone R. (Bail.)
Mt. Fox. (Glindeman).
Calanthe, *R. Br.*
veratrifolia, *R. Br.,* 1, 2.
Mt. Spurgeon (Flecker)
Root's Cr. (Carr)
Rockingham B. (Dall.)
Proserpine Area (Macpherson)
var. Kennyi, *Bail.*
L. Eacham (Kenny)
Eulophia, *R. Br.*
venosa, *Reichb. f.* 10.
Brown B. (Mackenzie)
Rockingham B. (Dall.)
Fitzalani, *F. v. M.*
Mt. Dryander (Fitzalan)
Carri, *White*
Julatten (Carr)
Cymbidium, *Swartz.*
canaliculatum, *R. Br.*
C. River (Fitzalan)
var. marginatum *Rupp*
forma fuscum, *Rupp. Tawny Cymbidium*
C. York (Bail.)
Mt. Garnett (Rupp)
forma purpurascens, *Rupp. Purplish Cymbidium.*
Proserpine, (Macpherson)
var. Sparkesii. *(Rendle) Rupp. Black Cymbidium.*
Mareeba (Tierney)
Heghenden (Rupp)
Hillii. *F. v. M. Hill's Cymbidium.*
Mulgrave Ras. (Bail.)
iridifolium. *Cunn. Damp-ampy.* 8, 9.
Tully R. (Bail.)
Mt. Fox (Glindeman)
Mt. Dryander (Fitzalan)
Bowen (Macpherson)
Proserpine (Macpherson)
suave. *R. Br. Snake Flower.* 9.
Mt. Bartle Frere. (Pearson)
Proserpine Area (Macpherson)
Geodorum. *Jackson.*
pictum. *Lindl. Bendy Backs.* 3, 4.
Bessie's Cr. (Flecker)
Tully (Flecker)
Cleveland B. (Bowman)
Pt. Denison (Fitzalan)
Proserpine Area (Macpherson)
dilatatum. *R. Br.*
Vrylia Pt., G. of Carp. (J. F. Bail.)
Dipodium, *R. Br.*

punctatum. *Hyacinth Orchid*. 12.
Alma Den (Lancaster)
Mt. Fox (Glindeman)
Hamiltonianum. *(Bail.) Cheel. Hamilton's Hyacinth Orchid.*
Somerset (Bail.)
ensifolium, *F. v. M. Leafy Hyacinth Orchid.*
Mt. Alexander (Kajewski)
Mt. Bartle Frere (Flecker)
Mt. Fox (Glindeman)
Luisia. *Gaudich.*
teretifolia, *Gaudich.*
Goode I. (Bail.)
Phalaenopsis, *Blume.*
amabilis, *Blume. Goat-eared Orchid.* 12 *to* 2.
Mossman R. (Nicholls)
Mt. Spec (Bail.)
Sarcochilus. *R. Br.*
olivaceus, *Lindl. Golden Sarcochilus.*
Rockingham B. (Dall.)
Ceciliae, *F. v. M. Fairy Bells.*
Rockingham B. (Dall.)
Cleveland B. (Bowman)
Hillii, *F. v. M. Dainty Cups.*
var. tricalliatus. *Rupp.*
Mt. Dryander (Macpherson)
platystachya. *Bail.*
Johnstone R. (Bancroft)
Chiloschista, *Lind.*
phyllorhiza. *F. v. M.* 10.
Hammond I. (Bail.)
C. York (MacGillivray)
Smithfield (Hunter)
Fitzroy I. (F. v. M.)
Campbell Cr. Falls (Flecker)
Johnstone R. (Bancroft)
Cleisostoma. *Blume*
tridentatum. *Lindl. Tangled Orchid.* 9.
Malaan Rd. Ravenshoe Dist. (Flecker)
congestum. *Bail.* 8, 12 *to* 2.
Cairns (Nugent)
Eubenangee (Bates)
Keffordii, *Bail. Kefford's Cleisostoma.*
Dunwoodie's Gap (Bail.)
Bellenden Ker (Bail.)
Johnstone R. (Kefford)
Armitii, *F. v. M.*
L. Lucie (Armit)
Burdekin R. (F. v. M.)
brevilabre, *F. v. M. Short-lip Cleisostoma.*
Mt. Fox (Glindeman)
Mt. Dryander (Macpherson)
Macphersonii. *F. v. M.* 10, 11.
Fishery Cr. (Flecker)
Rockingham B. (Dall.)
orbiculare. *Rupp. Gem Cleisostoma.* 10.
Proserpine (Macpherson)
Ornithochilus, *Wall.*
Hillii. *F. v. M. Fairy's Slippers.* 10.
Mt. Fox (Glindeman)
Proserpine (Macpherson)
Anoectochilus. *Blume*
Yatesae, *Bail.* 7.
Nr. Kuranda (Wild)
Ravenshoe (Larnach)
Goodyera. *Blume.*
viridiflora. *Blume.*
Rockingham B. (Dall.)
polygonoidea, *F. v. M.*
Daintree R. (Fitzalan)
Bellenden Ker (Bail.)
Rockingham B. (Dall.)
Hetaeria, *Blume*
tenuis. *Benth. Slender Hetaeria.*
Barron R. (Cowley)
Bellenden Ker Ra. (Bail.)
Rockingham B. (Dall.)
Thelymitra, *Forst.*
longifolia, *Forst. Common Sun-Orchid.*
Endeavour R. (B. and Sol.)
Rockingham B. (Dall.)
aristata. *Lindl. Scented Sun-Orchid.* 10.
Mt. Bartle Frere, 4700ft. (Flecker)
pauciflora, *R. Br. Small Sun-Orchid.*
Nr. Kuranda (Goadby)
Diuris. Sm.
alba. *R. Br. White Diuris.*
Rockingham B. (Dall.)
punctata, *Sm. Purple Diuris.*
var. minor, *Benth.*
forma Blakneyae. *Bail.*
Ravenshoe (Blakney)
Prasophyllum. *R. Br.*
rufum. *R. Br. Red Leek-Orchid.*
Rockingham B. (Bail.)
Microtis, *R. Br.*
parviflora, *R. Br. Slender Leek-Orchid.* 9
Up. Mossman R. (Flecker)
Corysanthes, *R. Br.*
aconitiflorus. *Spurred Helmet Orchid.*
Dunk I. (Banfield)
Pterostylis. *R. Br.*
ophioglossa. *R. Br.*
var. collina. *Rupp.* 7, 8.
Kelsey Cr. (Thorogood)
curta, *R. Br. Blunt Greenhood.* 6, 7.
Ravenshoe (Flecker)
depauperata. *Bail.*
Nr. Cairns (Wild)
Spiculaea. *Lindl.*
irritabilis *(Reichb. f.) Schltr. Hammer Orchid.*
Rockingham B. (Dall.)
Proserpine Area (Macpherson)
Acianthus, *R. Br.*
fornicatus, *R. Br. Fly Orchid.*
Rockingham B. (Dall.)
Caladenia, *R. Br.*
carnea, *R. Br. Pink Fingers.* 5, 9.
Mt. Spurgeon (Flecker)
Harvey Ra. (Goadby)
Mt. Elliott (Fitzalan)
Sinclair B. (Macpherson)
Nervilia. *Comm. ex Gaud.*
uniflora. *F. v. M.*
Rockingham B. (Dall.)
holochila, *F. v. M.*
Endeavour R. (Lovell)
Rockingham B. (Dall.)
Proserpine (Macpherson)
pachystomoides, *F. v. M.*
Rockingham B. (Hill)
Cheirostylis. Blume
ovata. *Bail.* 8.
Ra. nr. Cairns (Nugent)
Freshwater Cr. (Flecker)

Owing to lack of space, a very small section of this List has been held over till next issue.

ORCHIDS

We hold an immense stock of FINE HEALTHY ORCHIDS
A Wonderful Selection of

HYBRID CATTLEYAS
LAELIO-CATTLEYAS
CYPRIPEDIUMS
ODONTOGLOSSUMS
MILTONIAS

Plants of flowering size. Over 35 years' experience in export packing to Australia
Prices very reasonable. Write for our CATALOGUE without obligation.

MANSELL & HATCHER
Limited
Dept AOR. RAWDON, LEEDS, England

ORCHIDS and CALADIUMS

CYPRIPEDIUMS, 6 sorts for 24/-; 6 sorts CYMBIDIUMS, 23/-; 12 sorts Grand DENDROBES, 38/-; 12 sorts showy Orchids, 28/-; 24 sorts named CALADIUMS, 24/-. Post free. Catalogues of Orchids, Bulbs, Seeds, and Wholesale Quotation for Orchids, free. A copy of "ORCHID GROWING IN N.S.W." sent free with orchid orders.

THE
CHANDRA NURSERY
P.O. Rhenock, Sikkim 16 (Bengal)
INDIA

Splendid stock of

CATTLEYA, CYMBIDIUM,

CYPRIPEDIUM, ODONTOGLOSSUM

and PHALÆNOPSIS hybrids.

Over 3 acres of newly-built houses

devoted to Orchids

FLANDRIA

BRUGES (Belgium)

SANDERS
St. ALBANS
ORCHID GROWERS, HERTS., ENGLAND
OVER 50 YEARS' EXPERIENCE
AT YOUR SERVICE

TO SUIT ALL HOUSES **ORCHIDS** TO SUIT ALL CLIMES

WRITE FOR
Special Offers—Latest Price Lists
and
"Cultivation of Orchids"

An illustrated and interesting Book free on application to Members of the Orchid Society of New South Wales

●

SANDERS ORCHID GUIDE
A complete work on all best known species
1927 EDITION—POST FREE—21/-

ORCHIDS

Cymbidiums — Cattleyas — Dendrobiums — Cypripediums, &c.

You get Good Plants at Keen Prices from

Armstrong & Brown

Tunbridge Wells, England

* * *

Write for Price Lists. All orders received shall have our very best attention in packing and selection of the plants.

ORCHIDS

Orchids of merit in great variety
Ranging from seedlings to specimens
Choice Exhibition or Commercial varieties
Hybrids from parents of distinction
Interesting Botanical Specimens
Delivered all over the world, by:

Stuart Low Co.

Nurseries: Jarvisbrook, Sussex.

Head Office: Bush Hill Park, Enfield,
Middlesex, England

Catalogues on application. Inspection of our houses invited. Offer of collections.—small or large—prepared on request.

The Scarlet

DELPHINIUM

Nature's gift to Garden Lovers—the Flower of the Future

Tall growing, free flowering, well branched habit. True Scarlet in colour, hardy, easily grown, long lasting. Plant now.

4/- each. 6 for 21/-. Posted free

IFAFA LILIES

Hardy, free flowering in 5 distinct shades. White, Yellow, Red, Apricot and Pink. One of each, 6/-

Philip Montague

Bulb Specialist

Frankston, Victoria

W. J. HAGGETT

370 PARRAMATTA ROAD
PETERSHAM

* * *

Maker of fern tubs and casks to any size.

* * *

Petersham 3074

ORCHIDS OF SIAM

Cypr. callosum, Phal. Esmerala, Renant. coccinea, Rhyn. cœlestis, V. Denisoniana, and all kinds of SIAMESE ORCHIDS at MODERATE PRICES.

Catalogues free—Exchanges considered.

The Bangkrabue Nursery

24kh. Phaya Klahom's Lane
BANGKRABUE, BANGKOK, SIAM

INDIAN ORCHIDS

Fine collections of showy Orchids for £1, £2/10/-, and £5. Packing and Postage free to any address.

G. GHOSE & CO.

Exporters of Orchids, Liliums and Himalayan Flower Seeds.
TOWNEND, DARJEELING, INDIA

By Appointment to the Sikkim Durbar
Headquarters for everything in Indian Orchids, Bulbs, and Himalayan Flower Seeds

12 Cymbidiums, 50/-; 12 Cypripediums, 55/-; 12 Grand Dendrobiums, 36/-; 6 Vandas, 24/-; 25 Different Showy Orchids, 50/-; 100 Eucharis Lily Grandiflora, £6. Post Free. Cash, please.

Catalogue free.

Get your requirements from the officially recognised reliable Firm:—

L. B. PRADHAM & SONS
Post Pakyong, Sikkim, INDIA

WATER LILIES

Six distinct colours—flesh, rose, white, yellow, red, salmon, for 27/6, or 5/- each posted.

J. OVERALL
Darwin Nurseries
Sulphur Creek . . . TASMANIA

Notice to Advertisers

All enquiries as to Advertising space in this "Review" should be addressed to the publishers:—

SHEPHERD & NEWMAN, LTD.,
YURONG STREET
SYDNEY, N.S.W.

NATURAL HISTORY BOOKS

New and Second-hand, including a special purchase of 1600 from the Library of the late W. Howat Esq. Full list on request. Also FIELD NATURALISTS' REQUISITES, MICROSCOPES, Telescopes, Field Glasses, Survey Instruments, etc.

N. H. SEWARD PTY. LTD.
457c BOURKE ST., MELBOURNE

SIAMESE ORCHIDS

Ærides, Cypripediums, Dendrobiums, Phalænopsis, Vandas, etc., etc., etc., at reasonable prices; also willing to exchange.

PHRA MAHA VICHAI
591, KADICHIN, BANGKOK, SIAM

FRED A. MASHMAN Ltd.

CROYDON ROAD, HURSTVILLE
At Kingsgrove Railway Station

FLOWER POT MANUFACTURERS
F.A.M. SPECIAL AERATED ORCHID POTS

CHEAP AND EFFECTIVE

'Phone LW3113

If you are a flower lover, become a member of the Orchid Society of your own State; and join in appreciation of the climax of plants' evolution. Visitors welcomed at meetings.

◆

The Orchid Society
of New South Wales

Meets every month on alternate last Tuesdays and Thursdays, in Room 507, Phillip House, Phillip Street, Sydney at 8 p.m.

The dates of the next meetings of the Society are as follows:—

MARCH:	TUESDAY, 30th	MAY:	TUESDAY, 25th
APRIL:	THURSDAY, 29th	JUNE	THURSDAY, 24th

A hearty invitation is extended to all interested in Orchids to attend.

Communications regarding the Society should be addressed to:

T. H. JAMES,
67 Arabella Street, Longueville.
'Phone, B6351

◆

Queensland Orchid Society

President:
MILES R. FOX
Queensland Fruitgrowers' Association
BRISBANE

Secretary:
T. C. HARVEYSON
G.P.O. Box 2002 X,
BRISBANE

Meeting Place:
MINIATURE RIFLE RANGE BUILDING,
Boundary Street,
BRISBANE

Meetings held on Second Friday of each month

Printed and Published in Australia by the Orchid Society of New South Wales
G. Hermon Slade, Hon. Editor.

Wholly set up and printed in Australia by Shepherd & Newman, Ltd., Yurong Street, Sydney.

TAYLOR'S

Orchid Growers, Importers and Exporters

5 ACACIA STREET, BELMORE, N.S.W. 'Phone: UL1045

Our long experience in the culture of orchids is at your disposal, we cordially invite you to inspect our comprehensive stock of fine plants. We also give advice (free) on the construction or alteration of houses suitable for the cult. All postal enquiries receive our prompt attention.

Fully illustrated catalogue on application, also contains growing instructions.

SPECIAL OFFER OF INDIAN ORCHIDS

We have to hand and to arrive, an enormous quantity of assorted Orchids, such as Aerides, Cypripedium, Dendrobium, Renanthera, Saccolabium, Vanda, Thunia; including many fine specimens. Plants from 2/6 each.

Rare Renanthera Imschootiana (scarlet variety), 6/6 each.
Renanthera Coccinea, 10/- each. *Thunia Bensonae, 5/- and 6/6 each.*
A large range of hybrid Cypripedium in lots of 5 for 30/-, or 7/6 each.

TAYLOR'S

ORCHIDAL

A proven German Orchid Fertilizer which produces remarkable growth and magnificent dark, almost black-green, foliage.

PRICE: 6/- per ounce.
£4 per pound. Post free.

One ounce makes approximately 30 gallons fertilizer.

◆

Sole Agents:

W. Hermon Slade & Co., Ltd.,

Manufacturing Chemists,
ROSEBERY AVENUE,
ROSEBERY

Postal Address: **BOX 1540 D.D., G.P.O., SYDNEY.**

196.7-2

Australian
ORCHID REVIEW

C.T.G.

Price 1/6

The Official Organ of
The Orchid Societies of New South Wales & Queensland

Officers of the Orchid Societies of New South Wales and Queensland

New South Wales

President:

His Honour Judge H. F. MARKELL, K.C., B.A., LL.B.
"Kooyong," Hastings Road, Warrawee

Vice-Presidents:

E. A. HAMILTON
16 Hercules Street, Chatswood

Rev. H. M. R. RUPP
The Rectory, Raymond Terrace

Hon. Secretary:

T. H. JAMES
Arabella Street, Longueville

Hon. Treasurer:

L. F. HAWLEY
121 Middle Harbour Road, Lindfield

Committee:

C. A. JAEDE, M.B.
4 Rodney Street, Mascot

S. C. JAMES
39 Duntroon Ave., Roseville

Hon. Editor

G. H. SLADE, B.Sc.
"Raiatea," Oyama Ave., Manly

"Review" Sub-committee:

C. T. GOSPER
View Street, Lane Cove

Hon. Sub-Editor

R. M. STEWART
14 Bannerman St., Neutral Bay

Queensland

Patron:

Sir LESLIE ORME WILSON, P.C., G.S.I.E., G.C.I.E., C.M.G., D.S.O.

President:

MILES R. FOX
Cleveland

Vice-Presidents:

M. P. CAMPBELL
Ruth Street, Wilston

S. HARRIS
East Innisfail

Dr. D. A. HERBERT, B.Sc.
47 Main Street, Woollowin

P. A. LeFEUVRE
Wickham St., Ayr.

Lt.-Col. A. T. JACKSON
Roy St., Auchenflower

J. SKERMAN
Box 6, P.O., Maleny

Hon. Secretary:

T. C. HARVEYSON
P.O. Box 2002X, Brisbane

Hon. Treasurer:

J. R. TANNER
Phelan St., Clayfield

Hon. Technical Adviser:

C. T. WHITE
Botanic Gardens, Brisbane

Hon. Auditors:

J. MURRAY COX
Equitable Life Building, Queen Street, Brisbane

A. B. TANNER
Geelong Ave., Coorparoo

Committee:

L. F. HAYES
Primrose Terrace, Red Hill

A. P. BLAIR
Miskin St., Toowong

R. G. FERGUSON
14 Palmerston St., Annerley

A. W. HIGGINS
219 Gregory Terrace, City.

C. A. HILSDEN
Junction Rd., Clayfield

T. RICE
Prout Street, Camp Hill

W. McK. ROBERTSON
City Building, Edward Street, Brisbane

J. SMOLENSKI
Junior Terrace, Northgate

Now is the Time to Secure . . . .

ORCHIDS

Special Offer of 6 Assorted Orchids

Including Cypripediums, Dendrobiums, Cymbidiums and Vandas, for 25/-.

All the above are potted and are ready to be placed in the bushhouse or cool glasshouse.

These Plants can be inspected and purchased at our Nursery

We sell Orchids, buy Orchids, and exchange Orchids

A Fine Illustrated Catalogue with Cultural Directions, &c., is now available Free to all Orchid Enthusiasts

(Please add 2d. postage)

Best Quality Todea Fibre, Finest Growing Sphagnum Moss, 3/6 per bushel bag.
Celluloid Labels, 3/6 per 100.

Orchid Pots (with cut sides and holes for hanging), 4in., 3/6 per doz.; 5in., 4/6 per doz.; 6in., 6/- per doz.; 7in. 8/- per doz.

Postage or Freight Rates Extra on all these Sundries

Ask our advice on the growing of these beautiful plants, and we invite your questions.

Inspection
Cordially
Invited

J. BISSET

'Phone:
Drummoyne
1124

48 WAREEMBA STREET, ABBOTSFORD, N.S.W.

THE ORCHID REVIEW

● Founded in 1893, by the late R. A. Rolfe, of Kew. The only Journal dealing exclusively with Orchid Lore, featuring articles on the History, Cultivation, Hybridization, and all matters of interest to the Connoisseur, Amateur, and Trader.

Exhibition Reports and Registration Records of new Hybrids accurately kept and published.

Price, One Shilling and Sixpence, monthly, postage free. Back volumes and complete sets, bound or unbound, can be supplied from

ORCHID REVIEW LTD.

5 Tavistock St., Covent Garden
LONDON, W.C.2

CYMBIDIUMS

Smart's Garden Service

for Cymbidium Species and Modern Hybrids

Our collection of Cymbidiums — both species and hybrids — is worthy of growers' attention. All mature, healthy, and vigorous specimens, our stock contains the very latest and best varieties procurable from the leading overseas growers, as well as the proved old favourites.

FOR SIZE AND QUALITY WE ARE UNEQUALLED

PRICES: From 25/- to £5

We also cater for every kind of garden shrub and plant.
Seedlings of Special Quality.

AZALEAS and HYDRANGEAS in great variety. Prices competitive.

Visitors always welcome. Stroll round our grounds and choose plants to your requirements. Situated on the left-hand side of Pacific Highway, between Gordon and Pymble.

Smart's Garden Service

819-857 PACIFIC HIGHWAY, GORDON, N.S.W.
'Phone JX3052

Stock Nursery: H. E. SMART, Sobraon Road, Eastwood. Phone: Epping 1439

BLACK & FLORY

SLOUGH

ENGLAND

Cablegrams: "Orchids Slough"

●

Vigorous and clean plants in all sections.

Unrivalled in Hybrid Cattleya, Brassocattleya, Albino Cattleya and allied hybrid genera. Collections from £6 per dozen.

Cypripediums: The demand in recent years has exceeded the supply of this increasingly popular orchid, but we hope to make offers next spring from our large developing stock. We have distributed many of the best Cypripediums in cultivation.

Odontoglossum hybrids in fine plants and great variety at £3 per dozen.
Miltonias Odontiodas Cymbidiums

AUSTRALIAN ORCHID REVIEW

Volume 2 **June, 1937** No. 2

●

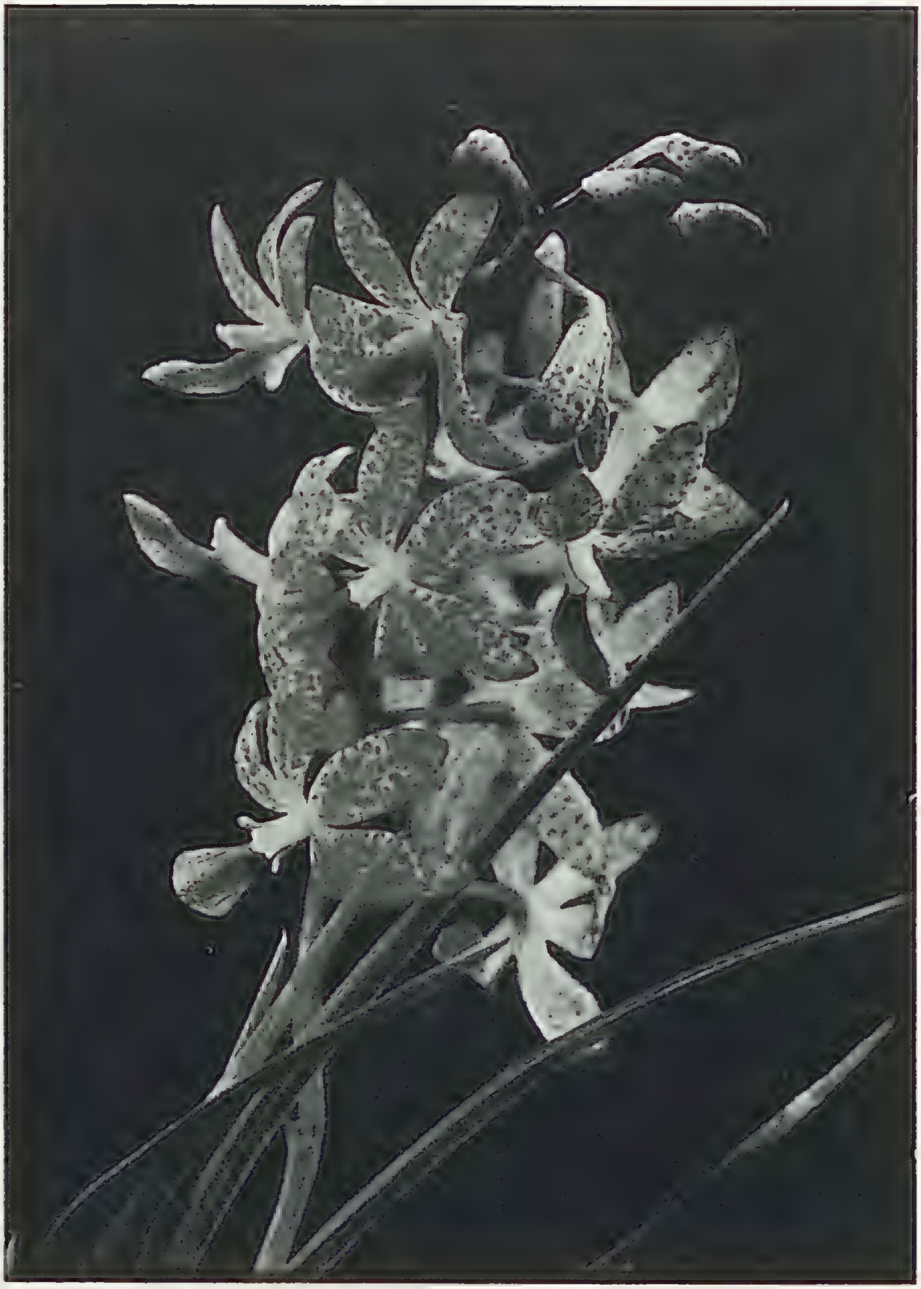
Contents

A New Menace to Cymbidiums 6
Angraecums 17
An Inspection of My Own Collection 12
An Inspection of Some Colombo Collections 21
A Note on the North Queensland Census 19
Building up a Collection 27
Cattleya Bowringiana 30
Cattleyas 23
Census of North Queensland Orchids 12
Cool House Culture 15
Correction 4
Cymbidium Traceyanum 14
Dendrobiums 25
Editorial—Observation and Experiment 3
Flower Photography 9
Mr. Louis L. Sander 4
Notes on a Rare North Queensland Orchid 19
Notice to Contributors 6
Odontoglossum grande 5
Orchid Display 24
Specimen Plants 4
The Genus Dendrobium 26
The Culture of Cattleyas in Baskets 13
The Mertilla Malayensis Fly 18
The Orchid Beetle 28
The Orchid House and Cultural Conditions 29
Vandas 7
Zygopetalum Mackayi 20

INDEX TO ILLUSTRATIONS

A Corner in Mr. Harveyson's Glass House 5
A Group of Choice Cattleyas 23
Angraecum sesquipedale 17
Anoectochilus Yatesae 19
Cattleya Bowringiana 21
Coelogyne flaccida 11
Cymbidium Auriga x Miranda 6
Cymbidium Traceyanum 29
Dendrobium thyrsiflorum 25
Dipodium ensifolium 2
Odontoglossum grande 15
Odontoglossum Nerida 9
Sophrolaeliocattleya Isacol 13
Vanda coerulea 7
Vanda tricolor 18

Subscription: 6/- per year, post free.



DIPODIUM ENSIFOLIUM

This rare North Queensland terrestrial was grown at Turramurra by Mr. William Schmidt. The colour is rose, marked with deep rosy purple blotches. The photo. shows the flower natural size.

Plant grown by Mr. W. Schmidt. Photo by Mr. H. J. R. Overall.

Australian Orchid Review

Editorial

Observation and Experiment

● We, in Australia, who have not for long followed the cult of the Orchid as a popular hobby, are, of necessity, far behind our fellow enthusiasts of England and the Continent in knowledge of our subject. The text books we read dealing with Orchids are written for overseas growers and we accordingly have comparatively little knowledge acquired under our own peculiar conditions. And by "knowledge" we mean something based upon *proved* facts.

We have our successes and our failures. Even with those species commonly regarded as being of easy culture, some growers consistently fail—and conversely these same growers may succeed with plants which others have given up as quite hopeless—the plants in each case being grown under apparently identical conditions.

Why? Most of us, after discussion round and about the matter, merely shrug our shoulders at the question and answer it to our own satisfaction by some reference to the imagined fickleness of the Orchid race.

This placing of the problem to one side is useless, not only to the puzzled grower but to ourselves and to those who will follow us in the future. It is our duty gradually to build up a store of proved facts about Orchid growing—facts established by ourselves, in our country and under our conditions. And we have our Orchid Societies to assist in this building process.

Let us, therefore, apply scientific observation to our problems. Why does one grower fail where hundreds succeed, when the unsuccessful grower's plant is *apparently* grown under conditions identical with the others? We ask the question again in the hope that this time you will not shrug your shoulders but will realise that there must be some *cause* for the *effect* of failure. Good! We ask ourselves if the conditions of light, temperature, humidity, ventilation and so forth are identical. Yes? Well, now, what about watering and drainage? Again no difference here? Then let us try the potting mixture. Here we find that the unsuccessful grower has embodied, possibly unconsciously, some ingredient not used by the others—say, for example, a lump of cow manure. Thus we learn as a fact that a lump of cow manure is injurious to that particular Orchid.

The illustration is quite elementary, of course, and of a problem which would occupy but a short time to solve, whereas other experiments may take years. Nevertheless, readers will realise how accurate observation and experiment must assist growers—provided records are kept and passed on to others. The subject is a vast one—quite beyond the scope of any one man—so each of us must do his part in making and recording his experiments and their results.

We have heard of Judge Markell's Odontoglossums. For years he experimented with them—with and without heat, under glass, in a bush house, and he at last achieved success out of doors—but under a particular species of tree which shed its leaves upon them. Will they grow as well or better elsewhere out of doors? Experiments are being continued and time alone will provide the answer. These experiments will be recorded for the benefit of others desirous of growing Odontoglossums.

Remember that our usual mode of growing Orchids can help us only slowly, if at all, and that accurate and recorded observation and experiment for one year will give vastly superior results to a century of the "hit or miss" method of acquiring knowledge.

Specimen Plants

B. P. DUNSTER, *Elstree, Herts., England*

● Throughout the later Victorian and Edwardian eras the vogue was for specimen plants under glass, huge pieces, for which pots and tubs were specially constructed and which called for glass houses of considerable size to accommodate them. With the general run of garden plants many of the specimens were entirely the handiwork of the gardener, having been raised from cuttings or single bulbs, but with the Orchid family these were solely imported pieces kept growing intact as long as possible, some growers being more adept than others. The most popular competitions at the various horticultural exhibitions were for specimen plants, which, if shown to-day, would be considered phenomenal by a younger generation of gardeners.

Twenty years ago that vogue terminated suddenly; the large conservatories were dismantled; importations declined; species became scarce, necessitating the division of the specimens for stock, and we were compelled to be content with smaller subjects .

A partial revival in big plants is now apparent, and well grown specimens are kindly looked upon by the R.H.S.

It has been stated by an authority that the ability to keep a large specimen in good health with continuation of growth year after year, is the acme of a good cultivator, and if patience is still considered a virtue he certainly deserves a pat on the back. Starting from one lead it is a job for many years to build up a shapely specimen, some genera being more prolific than others, but all needing considerable patience and careful handling.

Overpotting with consequent overwatering is the greatest pitfall. Few Orchids have a root system in proportion to their foliage and only require sufficient rooting space and available humus that can be used immediately.

The compost for most genera is based on a mixture of Osmunda fibre and Sphagnum moss, little or much according to the type of root system, with a corresponding amount of fibrous turf-loam for terrestials. Blended with this are draining materials, viz., charcoal—in which I am a firm believer—and crushed crocks. These should be graded, the largest used at the bottom and so on to the surface, so that the whole mixture is a well made moraine. A few terrestials appreciate a little limestone. Firm potting is essential, extra attention being paid to the centre, where ultimate decay always commences. Careful watering is always called for, especially so for a few weeks after repotting, and the plants should be turned round at least once a month to keep them balanced, with the exception of a few, such as Brassia verrucosa, which displays its spikes to more advantage when allowed to form a "face." To obtain well-flowered specimens they should only be allowed to bloom every alternate year, and only then when sufficient spikes are produced simultaneously to warrant the term "specimen."

Species of Ada, Brassia, Bulbophyllum, Coelogyne, Epidendrum, Cirropetalum, Sophronitis, Masdevallia, Maxillaria, Platyclinis, Ornithidium, Dendrobiums, Vandas, Phaius, etc., are good subjects usually available as large plants, but with Cattleyas, Cypripediums, Odontoglossums, and Miltonias resort must be made to the early hybrids, most of which are more virile than modern varieties and can often be obtained at auction as fairly large pieces.

One can be sure of a reputation if able to exhibit plants of this calibre, and one can consider the reputation well earned.

Mr. Louis L. Sander

● The "Australian Orchid Review" has learned with regret of the death at St. Andre, Belgium, of Mr. Louis Sander at the age of 58 years. Born in 1878, Mr. Sander had spent almost his entire life in association with Orchids as a member of the famous St. Albans firm with its Southgate and Belgian ramifications, and with his passing, the Orchid world has lost a great personality. We offer our sincere sympathy to Mrs. Sander and her family.

A Correction

The photograph of Cypripedium Fairrieanum on page nineteen of the March issue of the "Review" was taken by Mr. E. A. Hamilton, of Chatswood, N.S.W., of a plant grown by him.

Odontoglossum Grande

H. TAYLOR, *Belmore, N.S.W.*

● This plant, which forms the subject of our coloured illustration this quarter, is perhaps the most popular and easily grown amongst the species of this genus. The plant in question was grown by Mr. Tanner in Queensland, so it will be seen that this particular variety is not so dependent upon cool conditions as are the majority of the others.

Odontoglossum grande is a native of Guatemala. The flower spikes carry up to seven blooms, the spikes being produced from the sides of the pseudo bulbs before they have finished their growth. As will be seen from the illustration, the flowers are large, attaining a size of up to seven inches across, and of bright yellow colour, heavily barred with chestnut brown.

This plant prefers to be grown out-of-doors under rather heavy shelter, such as an overhanging tree, but it nevertheless requires ample light. In such a position it will have the desired coolness in summer, but in winter care must be taken to keep it free from frosts. In summertime, especially when the pseudo bulb is forming, it requires ample moisture, which should be given it in the early morning. They like drier treatment after the pseudo bulb has formed than most of the other members of this genus. They relish the natural dew and rain, the latter being particularly beneficial in that it keeps in check their most dreaded enemy, thrip. The potting mixture should comprise finely cut Osmunda fibre and moss in about equal parts. Ample drainage should be placed in the pot and the mixture tightly pressed about the rhizome but should not cover it. The pot should be of such a size as to allow three years' growth, no less and no more, before a further potting becomes necessary.

Bearing these few points in mind, the reader should have little difficulty in succeeding with this attractive but little-grown subject.

A CORNER OF MR. HARVEYSON'S GLASS HOUSE, BRISBANE

The photograph shows well flowered specimens of Phalaenopsis Rosenstromii growing above Gloxinias

Photo by Mr. T. C. Harveyson

A New Menace to Cymbidiums

W. ROTHWELL, *Beecroft, N.S.W.*

● At the April meeting of the New South Wales Orchid Society, I took in three spikes of Hybrid Cymbidiums, which, to all intents and purposes, had been snapped, or broken off, with about 10 to 15 unopened buds on each spike.

CYMBIDIUM AURIGA x MIRANDA
A choice hybrid having deep apricot sepals and petals and a lip marked with red and orange.
Photographed and grown by Mr. E. A. Hamilton.

These, however, were not broken, but cut, or more correctly speaking, "sawn" off by a new kind of fly previously unknown in New South Wales. This fly was caught in the act by Mr. J. Backhouse, the well known grower of Gerberas, at his nursery at Beecroft. Having, the previous day, lost two good spikes of Cymbidiums, and thinking that perhaps cats, rats or opossums were responsible for the vandalism, he determined to catch the culprit. After sitting up half the night without result, he retired to bed, but next morning closely inspected his plants. His attention was arrested by the sight of what looked like a mosquito on one of the spikes. This "mosquito," however, was adorned with a set of very fine scissors-like saws in its make-up, and at that very moment was performing its work of destruction, and so surprised was Mr. Backhouse at finding that the culprit was a small fly instead of an animal, that it actually completed its work whilst he watched and the sawn-off spike dropped to the ground. The fly, however, remained on the plant looking for more material on which to operate. After a deal of trouble Mr. Backhouse succeeded in capturing the fly in a bottle, and a little later on caught two more. Unable to attend himself, he asked me to take the flies and broken spikes to the meeting of the Society to ascertain if any members were experiencing similar trouble with their plants. The Secretary informed the meeting that he had only that day had an enquiry from a member regarding several of his Cymbidium spikes mysteriously breaking off, and seeking the cause. The writer himself lost a very fine spike of *Doris* for no apparent reason, and probably other readers may have had similar trouble. This article has been written at the request of members of The Orchid Society to warn readers to be on the look-out for this tiny insect, which, if it gets amongst your plants, will quickly do untold damage. It has been definitely located as "The Rose Sawfly," and was probably brought into this country from Europe with a batch of imported plants. Whether it will thrive and multiply in this country remains to be seen. If it does, it will constitute a very serious menace to Orchid lovers, and it behoves every grower to watch his plants carefully and not give it a chance to establish itself. We are indebted to Mr. Backhouse for making this matter known and capturing two or three of the culprits. No one likes to lose flowers after reaching the spiking stage. Let us all hope this pest will soon disappear.

Notice to Contributors

Readers are reminded that contributions of both articles and photographs are welcome, and for the September number, should be in the hands of the Hon. Acting Editor, Mr. R. M. Stewart, 197 Elizabeth Street, Sydney, N.S.W., before the end of July.

Vandas

E. J. BEARD, F.C.A. (Aust.). *Brisbane. Q.*

● Somebody has written that with a few exceptions Vandas have lost the popularity they possessed fifty years ago. If that is the feeling in England and the Continent it certainly is not on all fours with ours in Queensland, where Vandas are highly esteemed and thrive well if given suitable treatment.

Possibly in Europe and the British Isles some species may not have been a success under glass, particularly those varieties which in Queensland are partial to the direct rays of the sun, but with the wide experience since gained I do not understand why Vandas should be said to have lost the popularity they once possessed.

My notes are written principally for Queenslanders whose beautiful climate lends itself to the successful growing and flowering of these wonderful Orchids. I have in one of my Orchid houses Vandas purchased over thirty years ago and they are getting larger each year. A recent visitor from Melbourne who saw them wrote to the "Orchid Review" that they were like trees. My experiences with some of the varieties have suggested that they are fairly hardy and seldom fail unless neglected. They are very partial to a small brown scale and unless that is promptly got rid of the plants will lose a number of leaves and may eventually die. To get rid of this dreadful pest I have found the best plan is to brush the scale off with a nail brush, taking care not to injure the leaves and then spray with Volck Emulsion. After using this emulsion do not allow the sun's rays to settle upon the plant until the emulsion has evaporated, otherwise the leaves may be disfigured and burnt.

No hard and fast rule as to potting and treatment can apply to *all* Vandas. What would suit Vanda teres would kill Vanda tricolor in a week, and I might quote other parallel cases such as Vanda Alpina, which requires a cool house, whereas Vanda Sanderiana must be grown under the hottest conditions possible.

VANDA COERULEA

The beautiful Blue Vanda and one of the most popular species. The flowers attain a size of four inches across.

Photo by Mr. T. C. Harveyson

My experience in potting Vandas with which I have been successful is that they do best when grown in fairly large pots filled about two-thirds up with broken crocks and lumps of charcoal, then a few pieces of fibrous peat and topped off into a cone of living sphagnum moss. It is necessary to place a stake upright to hold the plant firmly in position, and care should be exercised so the roots are not bruised or broken.

Vandas are classed as Epiphytes, yet it is remarkable how they vary in habits, colours and sizes. On a recent visit to Ceylon I saw a remarkably fine plant of Vanda teres Andersoni. It was in full flower and growing right out in the sun, and it was potted in a compost of stones and gravel only. I am credibly informed by a recent visitor to Java that he saw an enormous plant of Vanda teres thriving in a large heap of cow manure. That experience helps one to learn that the early teachings which conveyed that manure in any form was death to Orchids do not apply at least to Vanda teres, and one is tempted to experiment with other varieties. In potting Vandas tricolor and suavis I frequently place a couple of very old bones amongst the broken crocks and I have not noticed any ill effects, and I consider the experiment worth extending.

Apart from the true species there have been some fine hybrids raised, but so far we in Queensland have not seen them all. Vanda Agnes Joaquim is a cross between teres and Hookeriana raised at Singapore in 1893 that does just as well with us as Vanda teres.

I made an experiment by crossing Vanda tricolor with Vanda suavis and have three small plants coming along nicely. I fancy this is the first Vanda cross raised in Queensland and we are all looking forward expectantly for the first flower.

The discovery of Vanda Sanderiana was made over fifty years ago on the Island of Mindanao by Roebelin, who was sent out by the famous Orchid firm of Sanders. His first visit was unsuccessful, for after going to a lot of trouble and expense fitting out an expedition from Manila, a serious earthquake occurred there and Roebelin had to return empty-handed. He again visited Mindanao about two years later and brought home his coveted prize, and what a sensation was created when the plants flowered and its glorious flowers were first seen by the Orchid enthusiasts of England and the Continent.

Potting

As most of the sorts like suavis, tricolor and suchlike large growers throw out quite a lot of roots, it is advisable, for these sorts, to provide ample pot room, and if second-hand pots are used, see that they are scrubbed well and are absolutely clean. Place the plants in the centre of the pot and stake firmly. Fill up about two thirds of the pot with broken crocks and charcoal, taking care not to damage the roots. Then place a quantity of clean fibrous peat or Osmunda fibre on top of the drainage, working it carefully in amongst the roots to within an inch of the top. Then top-dress with a good layer of living sphagnum moss, bringing it up to the centre in the form of a cone. I find that a two-inch layer of coke breeze on the benches gives off a continuous dampness that is relished by these plants when growing and never becomes sour or detrimental. In fact, it is quite a common occurrence for roots several feet long to be found in this coke breeze when repotting or removing the pots. Repotting should take place after the flowering stage or as soon as the roots show any movement of growing. The smaller varieties need much smaller pots, of course, yet they require ample root space.

Cultivation

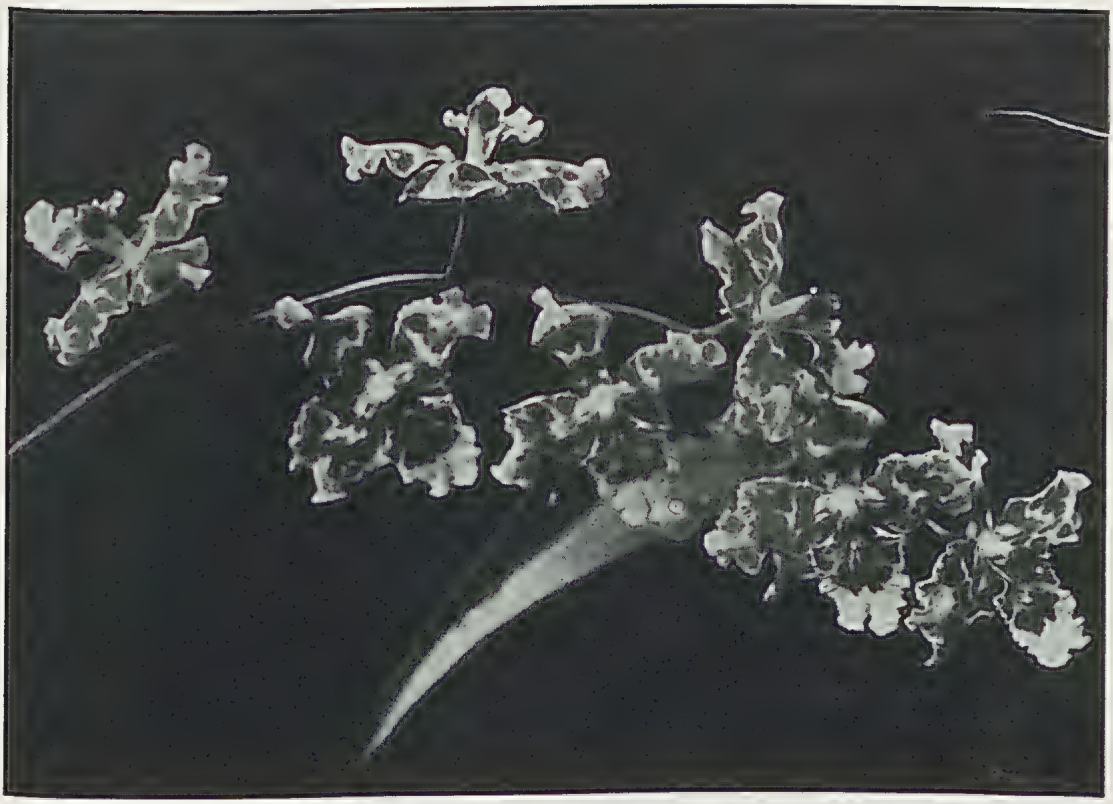
Bensoni, coerulescens, concolor, cristata, Parishi, lamellata, Roxburghi, Denisoniana, tricolor, suavis, insignis and coerulea require similar treatment to Aerides. Although they require good light they should not be placed where the direct rays of the sun reach their leaves. When growing and throwing up their flower spikes ample supplies of tank water should be given and in quantity that will penetrate the sphagnum and reach the roots low down in the pot. All these varieties should be grown in the bush house in Queensland and so placed that no wind can reach them.

Sanderiana has been found a rather troublesome customer that requires the hottest position in the glass house, with ample supplies of moisture. Although the light should be good it should be shaded from the direct rays of the sun.

Alpina, Amesiana, and Kimballiana should be given shady conditions in the bush house, as they require less heat than the others. The popular sky blue Coerulea is a mountain growing variety found on trees at an elevation of 3,000 to 4,000 feet, where the air is thin and rarefied, so that this variety is not likely to succeed under glass. I have a plant now coming into flower that bloomed with me over thirty years ago and it has always been grown in my bush house. It missed flowering for several years, so I experimented with it last year by giving it a trial in the sun. The leaves commenced to turn yellow after a few weeks and I returned it to the bush house where it is now throwing up a flower spike.

The terete forms like teres, Hookeriana and Agnes Joaquim are difficult to flower unless

(*Continued on page* 14)



ODONTOGLOSSUM NERIDA

A beautiful and well flowered hybrid. The flowers are white, heavily blotched with pale purple.

Plant grown by Mr. W. Rothwell. Photo by Mr. H. J. R. Overall.

Flower Photography

H. J. R. OVERALL, *Manly*, N.S.W.

Quite a considerable part of the success which the "Review" has achieved, has been due to the perfection of Mr. Overall's work—numerous examples of which have appeared in its pages. Mr. Overall has now contributed this interesting article on the subject of flower photography upon which he is an expert and commends it as a companion hobby to Orchid growing.

● It is over thirty years since I first became interested in collecting and growing many species of the little terrestrial Orchids and other plants of Tasmania. The Orchids were mainly Thelymitras, Pterostylis, Caladenias and Glossodias. These were collected among the mountains and along the coast in Western Tasmania. Placed very carefully in pots with the soils in which they grew naturally and plunged into the ground, many of these small species grew and flowered fairly freely, and as I chanced across what were then, to me, uncommon species or forms, it became my habit to make photographic records of my specimens.

Although completely inexperienced, some of my early attempts at plant photography were reasonably successful—others not so good. However, my few successes inspired my interest in this subject, and I set about learning all I could—and yet, after thirty years of never-flagging interest, I still seem to learn some little new point every time I use the camera.

Good photographs are often of considerable value as records of flowers for classification and comparison when the actual flowers themselves are no longer available; and there is, of course, the other consideration, that photographs of flowers often make very attractive pictures.

A camera which may be used for snapshot work is not suitable for serious plant photography, though some of the small modern precision cameras may be used with excellent pictorial effect. I prefer what is known as a field type of camera with a long bellows extension (triple extension) which permits of the image being focussed on a ground glass focussing screen. Such a camera permits of photographs being made to actual size, or the subject may be enlarged directly up to as much as four diameters magnification. Conversely, the image may be reduced to a definite scale. A low power hand lens or magnifying glass may be used to advantage to ensure the fine detail when adjusting the focus of the camera.

The lens is naturally a vital part of the equipment, and it should be of neither very long nor very short focal length. I use a half-plate size camera (plate size 6½in. x 4¾in.) and either a 7in. or an 8½in. focal length lens for almost the whole of my work. A lens of 5in. focal length would be suitable for a quarter-plate size camera. If a lens of shorter focal length is used, it will be found to give considerable distortion in a "close-up" picture, for the reason that those parts of the flower or group of flowers which are nearer to or further from the lens are proportionately much nearer or much further away when the focal length of the lens itself is relatively short.

The use of an unduly large focal length lens has a tendency to produce "flatness" in a picture. It is not necessary—in fact, I consider it undesirable—to use an excessively fast lens—that is, one of a very wide working aperture, since it cannot give the depth of focus which is usually required. A lens with a maximum aperture of *f*6.8 is ample, and I find I rarely work with it above *f*11, and more often at lower apertures in order to secure the crispness of definition required over the desired depth of field. The diaphragm should not be closed below this point, or it will necessitate greater length of exposure, which must be avoided if working out of doors, when the slightest breath of wind will cause movement of the plant or flower spike. Further, the undue stopping down of the lens may produce the effect of "flatness" in the picture by giving too great a depth of focus and may even give undesirable detail in a background.

The construction of the photographic lens itself is of importance. A lens which a portrait or pictorial artist may consider ideal for his purpose would probably prove least suitable for technical work or flower photography, when we require to produce with critical definition the finest markings in an Orchid flower. I prefer a lens of two cemented components, having only four glass-to-air surfaces, though I have been pleased with results on one occasion when I used a lens of three separate components—six glass-to-air surfaces. Many of the latest and very rapid makes of photographic lenses are constructed of nine separated components with the greater number of glass-to-air surfaces. There is a certain amount of reflection from each of these surfaces, so that we find a softening effect in the image when the focus of the camera has been correctly adjusted. This is not usually a fault, but we require a particular instrument for a special purpose, and in this instance the soft effect is not desirable. A compound lens of two cemented parts may, if desired, be used for softened effects by screwing the components partly out of the mounting to extend the distance between the component lenses.

The cost of the essential equipment is not very high. A used camera and lens can be purchased for from £4 to £8. The plates or films used for flower photographs should be sensitive to the colours in the flowers to be photographed, and as we are concerned with almost the whole range of the spectrum, we need to use plates or films which have been sensitised to all these colours. Where green and yellow colours predominate, the orthochromatic plates or films may be used, these being fairly sensitive to these colours. In general, a light filter is not required, but sometimes a light yellow photographic filter may be used to advantage.

The use of a light filter requires an increase in the duration of the exposure, but this calls for no additional independent judgment, since the relative increase is always given for each light filter.

As we frequently meet a considerable range of colours, the panchromatic plates or films give much better tone values and are therefore more suitable for all flower photography. A light filter should, in general, be used with these particular colour-sensitive plates or films. The yellow filters, light, medium and deeper yellow, are those most often used, and the lighter yellow filter would be safest for those who are commencing flower photography—experience only can guide one in the selection of the deeper coloured filters.

Red flowers can be recorded against a dark green background by using a red filter, which, passing the red light rays, gives a contrast which it is otherwise impossible to obtain.

Backgrounds are of great importance, and the background of a photograph should be such that in itself it does not attract the eye at first glance when viewing the finished picture. I can suggest no hard and fast rules with regard to the background — it must be selected for contrasting or softening effects as desired. The principal point to watch in the background of a flower photograph is the avoidance of any definite detail in the finished print.

When artificial backgrounds are used, such as dark, neutral or light coloured cloths or paper, they should be placed at such a distance or arranged in such a manner that no detail of the cloth or paper is visible when the object to be photographed is in sharp focus. I frequently use a black ground, as it seems most effective in showing flowers in relief for reproduction. A neutral background, such as foliage, is very effective, so long as its details are not sharply defined and it does not show contrasts in itself.

Light, too, is a most important consideration, and to the outdoor or daylight photographer is most variable. Our failure to assess its actinic value is the direct cause of most of our photographic failures—under or over exposure. Well-diffused light will enable all detail in flowers to be reproduced in the negative.

Carefully avoid all "hard" lighting — high lights and shadows will not permit reproduction of detail and will also destroy all general pictorial value.

The use of a sheet of white paper or cardboard as a reflector for the underside of the subject will be found to balance up the lighting somewhat. The light naturally comes from above, and without the use of a reflector, there will often be a shading on the under side of the flowers.

The next matter requiring consideration is the arrangement of the object to be photographed. Wherever possible, some of the foliage of the plant should be shown with the flowers. Always try to avoid crowding, where a number or group of flowers is to be photographed, and wherever possible, each bloom should be clearly shown. If the natural arrangement of the flowers is such as prevents this, then the flowers nearest the camera should be made the subject of the photograph and the others merged into the background.

As my concluding paragraph, let me stress upon you that success in this by-path of photography depends upon the most careful attention being given to all details, otherwise errors cannot be corrected. All photographic processes depend upon the reactions between the chemical compounds used in the preparation of the sensitive plates or films and printing paper and of the developing or fixing solutions and the catalytic action of light. Therefore, it is essential to see that all dishes and measures are carefully washed and to wash the hands after using one particular chemical or solution and before touching other materials or solutions. If, for a beginning, your failures outnumber your successes, remember that the exposure of panchromatic plates or films requires a little experience because in their development, they must be handled in complete darkness—no red light such as can be used with less sensitive films—and consequently there is no opportunity during the developing process to correct and compensate for under or over exposure. Once that experience is acquired, flower photography becomes a pastime almost as entrancing as Orchid growing—and each forms a valuable counterpart to the other.

COELOGYNE FLACCIDA

A pretty, cool growing coelogyne, carrying cream coloured flowers on arching racemes.

Photo by Mr. T. C. Harveyson

An Inspection of my own Collection

Dr. C. H. JAEDE, *Mascot, N.S.W.*

What a feeling of envy arose within me when reading Mr. R. M. Stewart's account of his visit to the President's collection! How proud would I be if my collection were sufficiently complete to permit of a decorative display of flowering plants. If the *Australian Orchid Review's* reporter arrived at my home, there is one portion of my orchid collection which occupies an exalted position amongst New South Wales' collections. I refer to my cemetery.

Here lie the departed spirits of orchidaceous plants purchased from dealers, imported from abroad and donations and exchanges from friends which reminds me of the stubbornness exhibited by some orchids in flowering—because a friend once gave me a plant of Cypripedium marmorophyllum!

I thought he displayed great generosity when I marched away with it, but I have for four long years treated it in every possible fashion—and all it does is the old soldier trick. After these four years I am beginning to doubt the generosity of my friend. I believe he had it about the same length of time.

I also purchased a Vanda coerulea. I cooked it in glaring sun, then soaked it daily, later put it near the glass and then away from it—everything possible—but nary a bud!

So I, too, became generous and gave it to my fellow Committeeman, Summer James. And now, after six years of varying treatments it still grows but not a flower shoot. Why?

I'm afraid now of orchid presentations. Mr. Gosper gave us an address recently on "Orchid Pests"—and I am of the opinion that plants given from friend to friend can be aptly classed amongst these. Still—I, in common with almost every grower, always believe when stubborn plants are presented to me, that I can do better than the previous grower—but I have never yet been able to do so, though I am still hoping.

Since we seem to have arrived at the subject of pests, let me say that I consider one of the worst of them to be the tiny snails—probably moss snails. Their appetite is not enormous, but the damage performed by them gastronomically certainly is. They are true epicures—eating only the tips of the growing roots—and that is sufficient, especially if the plant is newly potted. The thumb pressed on their shells is the only known cure. The garden snail is a gentleman compared with them.

This talk about snails makes me wonder why Mr. Overall does not commercialise his cannibal snail—about which he wrote so interestingly in a recent issue of the *Review*. No glass house should be complete without them—or perhaps he could, by selective herding, increase their voracity and hire them out! And if only their taste could be altered so that they would make an occasional beano of slugs—or if our hybridist, Mr. Hawley, would only apply his energy at present wasted upon Cymbidiums towards raising a hybrid of the Rhytida snail with a slater . . . !

Now slugs—which we just mentioned. They are supposed to be lazy animals or insects as the case may be. I certainly am. That green discolouration which occurs on pots—doubtless due to the growth of an Algae—and anathema to most growers ,I gaze upon with my blind eye. But lately a friend—or shall I say friends?—has or have come to my aid. A reward for slothfulness! A small insect, the size of an aphis with longish legs and with the reproductive ability equal to that of the fly, is apparently removing the eyesore without any effort whatever on my part. I will exchange several of these for a guaranteed flowerable cattleya.

And about Cattleyas . . . No— I must stop here else I will become even more morbid. A slug or something has just ruined my only present bud, and Cattleyas and slugs are tender subjects.

Census of North Queensland Orchids

(Concluded from last Issue)

- Epipogum. *Gmel.*
  - nutans. *Lindl. Drooping Orchid.* 11.
    - *Barron R. (Cowley)*
    - *Chuchaba (Pearson)*
- Habenaria. *Willd.*
  - graminea. *Lindl.*
    - *Rockingham B. (Dall.)*
  - Millari, *Bail.*
    - *Walsh R. (Barcley-Millar)*
  - xanthantha. *F. v. M.*
    - *Rockingham B. (Dall.)*
  - Banfieldii, *Bail.*
    - *Dunk I. (Banfield)*
- Zeuxine, *Lindl.*
  - oblonga, *Rog. et White. Shield Lip Orchid.* 9, 10.
    - *Proserpine (Macpherson)*

The Culture of Cattleyas in Baskets

L. F. HAWLEY, *Lindfield, N.S.W.*

● I first experimented with the growing of Cattleyas in baskets four years ago. The results in the early stages were inconclusive and I formed the opinion that Cattleyas grew equally well in pots as they did in baskets. However, the glasshouse was a very modest affair with every plant within easy reach so that its individual requirements could be always attended to. The superiority of basket culture did not become evident until it was necessary to remove the plants to their present home in the middle of last winter. To make matters worse, the builder neglected to leave the key of the glasshouse and the plants had to remain out in the open on a cold and frosty night.

For the next few months, settling down in a new house occupied most of my time. The orchids had to take a very secondary place, and, needless to say, the collection suffered severely. At the end of September the pot-grown cattleyas were in a deplorable condition. Fully twenty per cent. were thrown out. Fifty that were growing in baskets, however, gave no evidence of their ill-treatment, and it was due to this and also to some research work, that the decision was arrived at to basket the whole collection.

There are now some three hundred plants all growing in wooden baskets suspended from the roof of the glasshouse. The plants are in excellent health and show good root action and the growths now completed are in the great majority of cases, superior to the last English growth. Looking back twelve months, it is difficult to realise that the plants could even recover, much less make new growths and flower from the condition they were in. The significant feature was, however, that the plants which were already in baskets were hardly affected by the adverse conditions and are now the best of the collection.

SOPHRO-LAELIO-CATTLEYA ISACOL

A choice hybrid of S.L.C. Isabella with L. C. Colmaniana.

Photo by Mr. T. C. Harveyson

All this brings me back to the main issue, and that is: Do Cattleyas under our conditions grow better in baskets than in pots? In New South Wales and Queensland, the humid condition of the atmosphere must be very similar to the conditions obtaining in their natural habitat. Cattleyas, being epiphytal, mostly grow on the sides of trees with the roots just under and sometimes on the surface of the bark. Here they absorb moisture and are subject to atmospheric conditions, air and sunlight. The plants are also subject to much moisture in the rainy season but are well drained and protected from the too severe action of rain and sun from above by the horny nature of the leaves, and able to absorb moisture and life-giving properties from the humidity which arises from the jungle underneath. Under such conditions it is not surprising to find that the natives grow Cattleyas collected from the forest in roughly formed baskets. White collectors and growers in South America would not dream of growing them any other way. Photographs from Jamaica, numerous parts of South America, and from St. Louis in U.S.A., all indicate that in those places good results are obtained without the use of pots. In the North of Queensland, basket culture is almost without exception practised and, nearer at home, there are commercial establishments where Cattleyas in pots and also in baskets are grown in the one house almost side by side—those in the baskets being superior in every respect to those grown in pots.

One of the main objections to basket culture has been the cost. Baskets in the past were made of Teak and in this regard we have followed English precedent and, just because Teak is used in England and has been for years, it was thought that no other wood would be suitable. The scarcity of Teak locally has caused other avenues to be explored and it has been found that Colonial Beech and Borneo Cedar answer the purpose almost as well and are less expensive. A six-inch Borneo Cedar basket should cost about 15 pence, and if the plant is grown diagonally across the basket, it will have about 8 inches in which to grow. This should accommodate the plant for 3 years at least, so that over a period it will be found that a basket costs very little more than the cost of frequently repotting the plant grown in the ordinary way.

Whilst the growing of Cattleyas in baskets cannot be claimed as anything new, I feel that the days of growing these plants in pots are numbered, and that it is only a question of time, before this type of culture in localities where the prevailing conditions are naturally humid, becomes universal.

I would therefore suggest to those in New South Wales and Queensland who have not yet tried basket culture to experiment with a few next season—learn the best method of placing the plant in the basket diagonally so that it will grow from one corner to the other—watch the roots grow and water accordingly, and at the end of the season compare results with those left in pots. The following season, I fancy, will see the end of all your pots and thenceforth, as in my house, there will be nothing but baskets.

In conclusion, I would point out the considerably less risk of a juicy bud being damaged by snails, slugs, slaters or caterpillars when the plants are grown in baskets and suspended.

Cymbidium Traceyanum

● The large, delightfully fragrant blooms of this variety are, unfortunately, an exception to the rule of longevity amongst the other species of the Genus Cymbidium.

At the May meeting of the New South Wales Orchid Society, several members were discussing the rather bedraggled appearance of these flowers after a very few days when displayed in florists' windows in the city, and information was sought as to whether any attempts had been made to prolong their life in water by burning or bruising the stems.

Mr. W. J. Plowman was able to offer us a valuable hint. He had tried both burning and bruising without any appreciable result. On one occasion, after cutting a spray and finding it half dead very shortly afterwards, he threw it in disgust into a fish pond, later to find it had recovered its fresh condition completely. This spray lasted three weeks in water after its soaking, and had none of that limp, collapsed appearance which Traceyanum usually has soon after cutting. Mr. Plowman has since found by experiment that complete immersion of a spray in water for about twelve hours will increase its span of life in a vase most effectively.

Vandas

(*Continued on page* 8)

grown in the sun. For years I grew teres but could not flower it until it grew out of the top of the bush house and since then it has bloomed regularly in the sun. It goes without saying that these Vandas grown right outside in the sun get very dry and parched unless kept well sprayed with water daily and they will shrivel if regular watering or spraying is not given.

In the next issue I will give a list of the principal varieties, with their descriptions.

(*To be Continued*)

Cool House Culture

T. H. JAMES, *Longueville, N.S.W.*

● Another season has passed and most of our Orchids have finished growing and should now be induced to take that rest which experience has shown, particularly in regard to epiphytal Orchids, to be so essential to the maintenance of continued improvement in both growth and flowering. To that end water should be withheld or, at any rate, be very considerably reduced. I mention the alternative because, as in every phase of Orchid culture, growers must use their own discretion. If the plants are exposed to freely circulating air and the winter be dry then the plants will require a little water—just sufficient to keep them from shrivelling unduly. But if water must be supplied choose a warm day and not a cold one. If, however, the weather be damp or if the plants are in a glass house charged with moisture, then watering should not be necessary. It will be realised that, in all the varying conditions under which Orchids are grown in Australia, no rigid rule can be laid down. One point should be remembered, however, a dry plant will survive cold conditions that will quickly kill a wet one.

Cymbidiums, that is, those that have reached the flowering stage, will now be showing their flower spikes, although some are already in flower, such as giganteum, Traceyanum and Mastersii. These will appreciate a little weak liquid cow manure at intervals of about ten days.

These appear to be the simplest form of Orchids to grow and probably most growers are achieving success. There still appears, however, to be a difference of opinion as to whether freer flowering results from small or large vessels. My own results are somewhat contradictory, but I believe that for generally good vigorous growth with correspondingly large flowers and lengthy spikes large vessels will be found to be the better.

ODONTOGLOSSUM GRANDE

A striking native of Guatemala. See article by Mr. H. Taylor on page 5.

Photo by Mr. T. C. Harveyson

Cypripediums are still growing vigorously, but with the colder weather, ease off the water.

As to Cypripediums—one result of my experiences may be of interest. I have found from time to time plants which appear to be stationary. The foliage remains green and apparently healthy but there is little or no progress. Whenever a plant showed that tendency I soaked the pot in water, up-ended it, and carefully tapped the plant out. If the roots were fresh and the tips alive the plant was replaced in the pot. If, however, the root ends were dead, the compost was shaken off, the roots vigorously hosed and all dead portions removed. It was then repotted in a *smaller vessel* in fresh compost, mainly of fibre and a little moss. In every case I found an immediate response. Probably those roots were infected with some bacteria which prevented development. Anyway, whatever the cause, the washing and repotting gave good results. This treatment would probably apply to other types, although I have had no occasion to adopt it.

As to the many other species, it would perhaps be better to answer individually any point concerning which a grower may be in doubt.

These notes represent the common practice of most growers, but I believe, from the correspondence I receive, that there is a considerable number of beginners who have not heated glass houses to whom I hope they will be helpful.

There is one phase of Orchid culture that I am continually endeavouring to induce members to realise, but not with much success. By now most growers will have realised that many Orchids are extremely temperamental. That is, certain plants will grow better in one part of the house than another; better in a bush house than in a glass house; better in baskets than in pots, etc. The success or otherwise of particular conditions can only be determined by experiments. For instance, some growers have their Cattleyas all in baskets, or all in pots, and under exactly the same conditions. Another member, after seeing the collection, will consider that they are doing better that his, and he then wants immediately to reverse the containers of his own without taking into account the possibility of very different growing conditions of his own house. Others keep their plants intensely dry during the winter; others not so dry. The results may be successful, at any rate from the point of view of the particular grower, but under different treatment they might do much better. That question can only be determined by experimenting with a number of plants treated differently for comparison purposes and not for one season only, but over a number of years. If members would do something in this direction, no matter in how small a way, and advise the Society of their results, the successful culture of Orchids would be considerably advanced.

Personally, I have Dendrobiums, Cattleyas and many other types, some in pots; some in baskets; some under glass; some under bush house conditions. It is, however, too early yet to make any statement except that, under my conditions, epiphytal Orchids seem to do better in baskets than in pots. This winter I am keeping most of my Dendrobiums under bush house conditions. Some, however, will be protected from the rain; others not so, provided, of course, they have become established.

As to Cattleyas, all my plants which had any real vigor when originally received, after passing through the last rather severe winter, have made considerably larger growths than those produced last year, and the majority have flowered or are about to do so. Some when received were in very poor condition and the growths made by them have gone back. They are, however, now rooting well and will, I hope, do better next season.

Certain Dendrobiums such as Wardianum and chrysanthum frequently commence new growth during the winter. My Wardianums in Sydney have already started, although those on the mountains have not yet completed their last growths. Such plants will, of course, require a light watering once a week or fortnight according to climatic conditions during the cold season.

I have found, in regard to epiphytes, that, when the new growth is developing, plenty of water is required. As soon, however, as that growth shows signs of finishing (in the case of Cattleyas it would be when the base of the leaf emerges from its sheath) water should be withheld. That will almost invariably induce free rooting from the new growth. When those roots appear, light watering should be given until the green tips of the roots turn brown, which is a sign of the cessation of all activity. After that water only if they become too shrivelled. Most of my Cattleyas so treated are now rooting well and, moreover, where they are being grown in pots, the roots are going into the compost and not growing over the sides.

In a previous article I mentioned having used a "Glass Substitute"—a cotton material impregnated with paraffin—for protecting some of my Orchids from the rain during last winter. That served its purpose during the winter but during the hot days of summer the paraffin melted away. The subsequent shrinking and stretching from alternate rain and sunshine rendered the material useless. It tore in all directions and has had to be discarded. Therefore, even as a temporary expedient, the experiment proved expensive.

Any beginner who desires any information about anything relating to his Orchids should write to the Hon. Secretary of his State's Orchid Society and every effort will be made to supply the information required. That is one of the objects of these Societies.

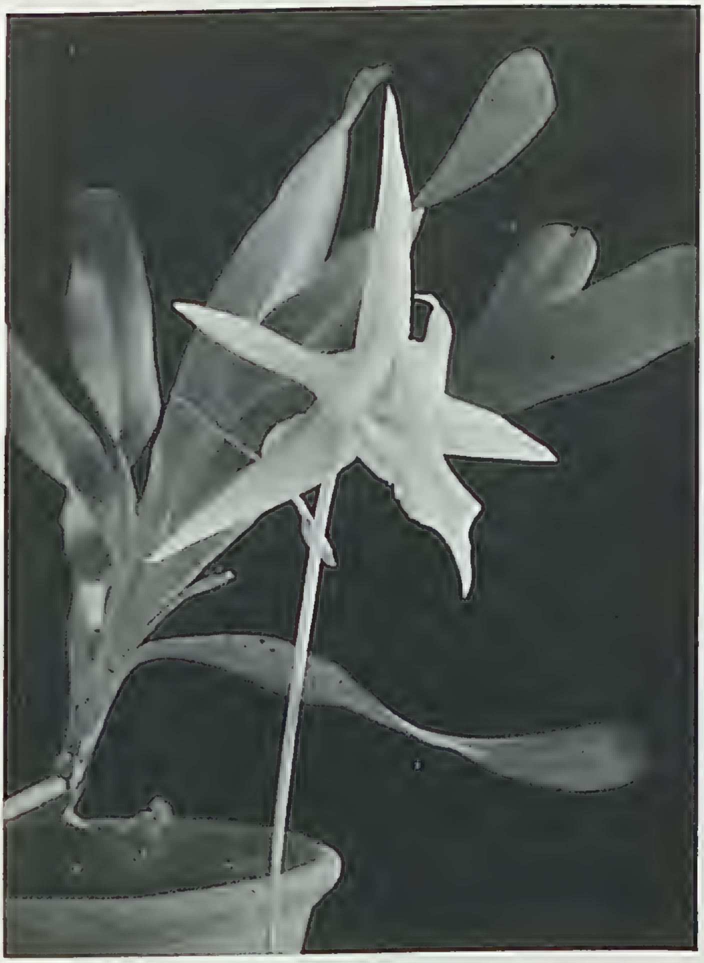
Angraecums

● This genus, though a large one, is not well represented in Australian collections. It occurs chiefly in tropical Africa and adjacent islands and is of particular interest on this account since so few cultivated Orchids come from this Continent. It is epiphytal and has no pseudo bulbs, bearing a resemblance in mode of growth to the Vanda. Several of the species attain a considerable size, especially sesquipedale, which is pictured on this page and which attains a height of several feet. On the other hand, other varieties only attain a height of a few inches.

They require warm treatment, ample moisture when in growth, and plenty of light. The smaller growing species should be suspended from the roof quite close to the glass, though care must be exercised to avoid burning, which easily occurs to the young leaves.

Though stated above to resemble the Vanda, it even more closely resembles a Saccolabium in appearance, but the spur to the flower, which is shown in the photograph, makes it easily distinguishable.

The flowers are usually white in colour and are carried on spikes which appear, similarly to the Saccolabiums, from the axils of the leaves. The flower illustrated is white and heavy and attains a size of up to seven inches across, with a spur a foot long. The species is capable of producing up to five flowers to the spike. It is a native of Madagascar.



ANGRAECUM SESQUIPEDALE
A fine example of this unusual flower
Plant grown by Miss Soegaard. Photo by Mr. T. C. Harveyson

It is a novel plant in Australia, though quite popular in England, and it is indeed strange that the genus has not received more attention here, for the flowers of many of the species are large and handsome and of most unusual shape.

Another attractive species is eburneum, which has a slightly larger habit of growth than sesquipedale, though the flowers are, in general, somewhat smaller. It has tinges of green on the sepals and petals and on the spur.

Sanderianum, which has its habitat in the Comoro Islands, which lie between Madagascar and the east coast of the mainland, is another handsome variety of much smaller proportions than the other two mentioned. It attains a height of only about a foot and carries many smallish, though long spurred, pure white flowers on its twelve-inch spikes.

For a potting compost, equal parts of Osmunda fibre and Sphagnum moss should be mixed. For the larger species, crocks or large

(*Continued on page* 20)

The Mertilla Malayensis Fly

W. F. TIERNEY, *Cairns, Q.*

● The *Mertilla Malayensis* fly lays its eggs under the leaves of orchids, and by looking under the leaves one can easily tell which leaves are being used as incubators. When the eggs hatch, the small insects are light in colour and about the size of grains of sago. It is very fast in its dash down the plant stalk and into the compost. It becomes black as it gets older, and when matured, develops wings. At this stage it is about the size of a grain of rice. Its head is red and the other portions black As one attempts to squeeze him between the thumb and forefinger, he runs from top to bottom of the leaves and under and over them, and if you are not quick he will take to wing, where it is usually much easier to kill him. Once a new growth is noted looking sick, or any orchid leaf that had been nice and green, developing white markings on the surface, you will know at once that you have the Mertilla fly in your house, the only positive cure for which is daily inspection and killing off. I have tried several insecticides, with no result. One orchid grower of the writer's acquaintance sprayed heavily with Arsenate of Lead, and in 48 hours nearly all his orchids had lost their leaves. Even this did not eradicate this dangerous pest. This fly comes from Java, but to my knowledge he has never yet made his appearance on Phalaenopsis amabilis. His menu in my bush-house is Dendrobium phalaenopsis, Dendrobium bigibbum, Dendrobium crumenatum, Dendrobium superbum and a few others. In my opinion, we have just as dangerous an insect in the Pumpkin beetle. I will post samples of this fly to the Orchid Societies for identification purposes, for he will do tremendous damage unless exterminated promptly.

VANDA
TRICOLOR

A very popular and showy species.

Grown by Mr. T. C. Harveyson

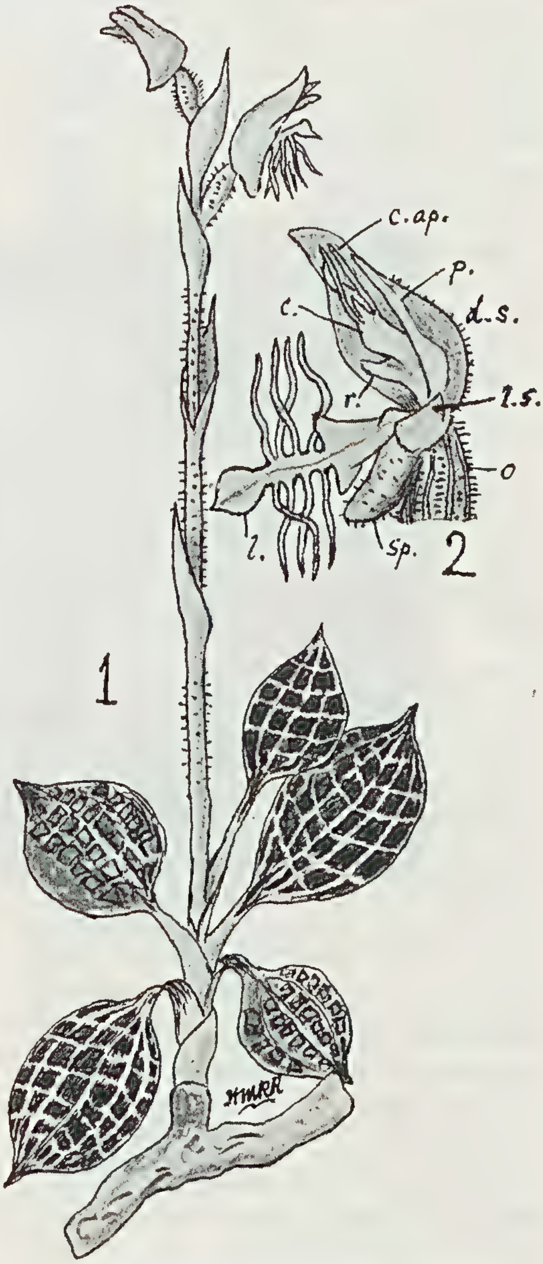
Block by courtesy of "The Queenslander"

Notes on a Rare North Queensland Orchid

Rev. H. M. R. RUPP, *Raymond Terrace, N.S.W.*

● Mr. Schmidt's interesting remarks in the March "Review" on the genus *Anoectochilus* suggested to me that some account of the only known Australian species, *A. Yatesae Bail.*, might be welcomed. I believe that Dr. R. S. Rogers is to discuss this Orchid from the botanical point of view in another journal, and therefore I shall confine myself to a general description. In making the enlarged drawing of a flower (Fig. 2), I received great assistance from a photograph sent by Dr. Rogers, who made exhaustive examination of the specimen which I had forwarded for inspection. With the exception of the type in the Queensland National Herbarium at Brisbane, I believe that my specimen is the only one known. I am indebted for it to that indefatigable enthusiast in the domains of natural science, Dr. H. Flecker, of Cairns. It was collected by a Mr. Larnach near Ravenshoe, on the Atherton tableland, in July, 1935.

A. Yatesae is a small plant from 4 to 7 inches high. Its generic identity was conjectured by the late F. M. Bailey, before he had seen a flowering stem, from the resemblance of the beautiful leaves to those of larger Indo-Malayan species of Anoectochilus. I must frankly admit that my line-drawing does scant justice to these leaves, which require a colour drawing to depict the pattern of the fine sinuous veins, golden against a deep red or reddish-brown background. The flowers are small and green, but the remarkable structure of the labellum and column invests them with peculiar interest.



ANOECTOCHILUS YATESAE, BAIL.
Ravenshoe, N.Q.

1. Flowering plant, nat. size.
2. Flower, enlarged, with one lateral sepal cut away to expose the interior, and the labellum pulled out and flattened.

l, labellum; *sp.*, spur; *o*, ovary; *ls*, the cut sepal; *ds*, dorsal sepal; *p*, petal; *c. ap*, column-appendage; *c.*, column; *r*, rostellum.

A Note on the North Queensland Census

The Rev. H. M. R. Rupp has written to us in connection with the list published in our last issue as follows:—

"I have asked Dr. Flecker about the record of Nervilia holochila in the North Queensland Census. In my opinion, the Proserpine plant is N. Dallachyana. I have had numerous beautiful flowering specimens sent to me, and a reproduction of my drawing appeared in the "North Queensland Naturalist" for February, 1935. I have two pots at present of these plants and I am wondering if I shall be able to flower them."

Zygopetalum Mackayi

W. J. F. PLOWMAN, *Oatley, N.S.W.*

● This is a handsome plant with large ovate pseudo bulbs with distichous linear-lanceolate leaves, and a radical scape, 18 inches or more long and bearing a raceme of six to eight large and very effective flowers, having yellowish green lanceolate sepals and petals heavily blotched, or barred with purplish brown, and a large spreading round undulated emarginate lip, white, marked all over with narrow lines and spots of purplish blue, the disc bearing a large ruff which is similarly striped.

A well grown plant in full flower is so seldom met with that perhaps some of your readers will be interested in the method adopted by the writer in the cultivation of this unique and beautiful Orchid.

Owing to the fact that it is a native of Brazil, many early growers adopted similar culture as applied to Cattleyas, only to meet with very poor results, and later adopted a compost of peat with plenty of good drainage, and the results were much more satisfactory.

When first I attempted to grow this species it was with imported peat mixed with silver sand and loam, and with quite good results, but as the imported peat was expensive, experiments were carried out with various mixtures, until, departing from all the accredited methods, one plant with several good bulbs was potted up in a very large pot with plenty of drainage in the form of broken crocks about 4 inches deep covered with about 1 inch of Osmunda fibre and then the rest of the pot filled with the following compost: One part of cow manure quite 2 years old and rotted to a black mould, 2 parts of leaf mould (must not be gathered under gum or angophora trees), 1 part of silver sand (this is very necessary), and one part of well rotted turf broken into pieces the size of walnuts and with a good sprinkling of charcoal broken into small pieces, the whole thoroughly mixed and pressed fairly firmly, taking great care not to bruise or break the very fleshy roots.

Zygopetalums will grow very vigorously in this mixture and produce two flowering spikes from each new growth, provided, and this is a very important point, they are watered thoroughly during the growing period, but *never* overwatered, otherwise black round spots will appear on the foliage which are very detrimental to the wellbeing of this plant.

After the flowering is over, the plant will complete its growth and then it can be given only sufficient water the rest of the season to prevent any shrivelling of the pseudo bulbs.

It does remarkably well grown in a very lightly covered bush house during the spring, summer and early autumn, and as soon as the flowering spikes, which come away from the base of the new season's growth, are about four to six inches long, the plant can be removed to the cool glass house, where the flowers will open more satisfactorily, especially if the early winter is colder than usual.

Amazing growth and wonderful flowerings have been the result of the above method of cultivation, especially when the plant has been given weak applications of liquid manure made from cow manure strained through bagging and applied twice weekly the colour of weak tea, but this must only be used on healthy vigorous plants, which respond wonderfully under such treatment.

Such feeding must only take place when the new growths are about 5 inches long and never after the flowering has ceased, and must not be continued once the flowers start to unfold.

Liquid manure made from imported Peruvian Guano or Canary Guano is excellent, and fully repays the cost of importing this valuable fertiliser, which, unfortunately, cannot be obtained in Sydney and which promotes phenomenal growth and imparts brilliant colour to many flowers of the Orchid family.

A photograph of this striking flower appeared in the July-September, 1936, number of the "Review."

Angraecums

(*Continued from page* 17)

lumps of charcoal or brick should be added, whilst the small growing varieties require the mixture to be finer and they appreciate a somewhat larger proportion of moss.

Good drainage is essential and the compost must never be allowed to sour. Draughts are fatal.

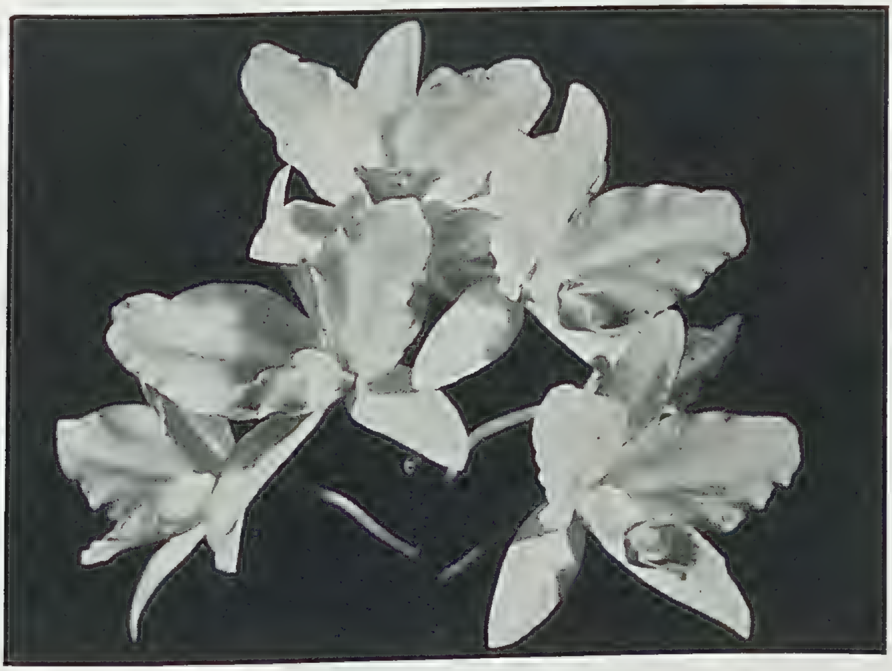
Why not popularise this genus in Australia? Judge Markell has a plant growing happily amongst his Vandas, and it receives no particular treatment that is not accorded to them.

An Inspection of Some Colombo Collections

G. HERMON SLADE, *Manly, N.S.W.*

● The Orchid collections which I was able to visit were marvellously interesting. All the things we know as easy, were the most homesick, emaciated objects; while the things we look on as hard, of the tropical kinds, of course, were here in an unimaginable luxuriance and health.

A few *Dendrobiums,* especially *D. fimbriatum* and *moschatum,* were huge and full of health. *D. nobile* was quite good, but I have seen somewhat better in Sydney, and most other Indian Dendrobes were not very conspicuous in my very hurried glimpse round the collections.



CATTLEYA BOWRINGIANA

A species having rose-purple flowers with a darker lip. See paragraph on page 30

Photo by Mr. T. C. Harveyson.

Dendrobium superbiens was marvellously grown, with a huge spike of beautiful, healthy flowers, and fine new growths; *Vanda teres* and *Vanda Miss Joachim* were growing with their ears back, and flowering gloriously with 4-7 flowers on a spike, and of wonderfully rich colouring; far better than any I have seen in Australia.

Grammatophyllums were terrific—huge masses of foliage and in faultless health. *Arundinas* were very fine, of height about 4-6 feet; clothed with fine healthy leaves and terminating in their pretty flowers, for all the world like *Laelia anceps.* Each Arundina flower lasts about three days, and then another bursts, so that the spike lasts a very long time.

Strangely, our *D. linguaeforme* and *D. teretefolium* and several other Australian species looked quite pleased with their new home.

Then, of course, *Cattleyas.* The Cattleyas I saw were in fair but mixed condition. In a private collection I visited in Colombo, despite the fact they were only a few feet from the sea, these plants were in far healthier condition than those at either the Victoria Gardens or at the Paradenya Gardens at Kande, and were quite as good as the very best we could show in Sydney; and far above our average.

In the private collection mentioned, in which the Cattleyas were so surprisingly good, they were grown in pure crocks with no moss, fibre or organic matter whatsoever added. The crocks were made of equal parts of red brick, charcoal and bone, and built up in what we would call "huge" shallow pots about 10 inches in diameter and about 5-7 inches deep. The crocks are carefully built up with large lumps fully 1-1½ inch diameter on the bottom, and topped with smaller pieces, but not less than ½ inch diameter.

Grown in this way, with their almost nightly shower of tropical rain, they produce any number of fine roots and look well. The owner of these plants must have some secret, I think, because his plants were conspicuously better than the couple of other collections I saw, despite the fact that they were, from a very superficial examination, all similarly planted.

Oncidium Sphacelatum was fine and with huge, very branching spikes and quite a mass of flowers; other Oncidiums were quite fair, but not outstanding.

The *Cypripediums* were funny. Although there were a couple of *C. hirsutissimum* and *C. bellatulum* I did not see any others. These two plants were growing rather well and flowering quite nicely, but they looked as if they were unhappy exiles. I don't know *what* was definitely wrong with them, but healthful vigour, shiny leaves and colourful flowers were only half-hearted. They definitely had no "rosy cheeks," but it is difficult to say in what particular.

I was told that the Cypripediums were definitely very difficult, and was shown Cyps. with a pride similar to that I would display in showing a visitor from Ceylon a Grammatophyllum or Spathoglottis that was *really* growing.

Cymbidiums, other than the very common *C. bicolor* (leaves like *C. aloifolium*) were not to be seen, and are, I believe, very difficult.

Peristeria elata was a plant doing extremely well and flowering beautifully, with its realistic dove-on-the-nest idea; and was exceptional in shape and decidedly ornamental. Its leaves especially were very handsome and full of real health.

Everywhere and in every garden are the ever-popular *Spathoglottis*, of yellow, purple, a hybrid between these two of rather larger flowers, warm yellowish purple inside the flowers, purple with a yellow flush on the outside. I saw one pure white Spathoglottis, quite pretty.

Vanda Roxburgii is very conspicuous and grows freely, while *V. Spathulata* with surprisingly yellow brilliant flowers was very showy, growing almost as a terrestrial in the botanic gardens outdoors.

The *Renantheras* and *V. teres* and *Miss Joachim* were rampant, growing in full sun and extremely colourful and showy.

As for the native Orchids: I saw any number of *Cym. bicolor* and *Saccolabium*, very interesting to look at, being very like V. Roxburgii; but, I believe, of poor flowers. I saw no *Coelogyne odoratissima* or *D. Maccarthiae* in the wild; but I did see a *Pleione* in the gardens, looking quite happy and in a very airy and bright spot in the bush house. My own results with Pleiones is a sad secret I keep to myself, but by trying them in a bright airy spot more might be done with them. They were not in flower.

In general, those plants we find hard, such as Grammatophyllums and Spathoglottis, certain Vandas, Renantheras, and Arundinas, were marvels of health and vigour; but Cattleyas were, in general, disappointing because I expected to see them growing furiously. They were, on the contrary, no better than ours; while Cypripediums, etc., which we look on as the essence of ease, were hardly existent.

The Orchid Beetle

(*Continued from page 28*)

nicotine sulphate is a very strong poison, and with that in mind I personally would not recomment it too strongly. That, of course, is only my opinion. Others may have a different one, and I am not going to say that my method of control of this pest is altogether the best, but actually I have found it to be the most effective from my own point of view.

In conclusion, I would say that the best method for all Orchid growers where this pest occurs, would be to enclose all the openings in the house with perforated zinc or copper gauze. To those who may be contemplating building a new bush house I would recommend close boarding or bricking up to a height of 4 feet from the ground, with the western end closely boarded or bricked to the roof. The remaining portion of the two sides, one end and the roof, to have battens of 3in. x 1in. three to four inches apart, over which perforated zinc should be nailed on with galvanized clouts. This will ensure plentiful light to your Orchids, as the sun's rays are broken through the perforations and consequently no burning will take place among your plants, and at the same time will give you the full benefit of the sunshine, which Orchids of nearly all kinds revel in, and will also break down the heavy winds which may be prevailing from time to time. Particularly it will ensure your Orchid house being absolutely free from the invasion of all kinds of insects, even the mosquitoes.

Cattleyas

E. COOPER, *St. Albans, England*

The "Review" has been fortunate in that Mr. E. Cooper, of the well-known house of Sanders, St. Albans, England, has contributed this excellent article on the cultivation of Cattleyas. This will appear in three parts. Readers are asked carefully to note that this article was written in England and that the seasons mentioned, except where otherwise stipulated are those of England.

● I must express some doubt as to whether or not any value can be attached to these notes, in view of the reversed seasons and the difference from English conditions which obtain in Australia. My visit to Australia was all to short and confined chiefly to the Sydney and Melbourne districts, hence I can only judge from experience during the summer months in those districts.

It has been said that a rule cannot be a rule until broken, and in Orchid culture success is gained, not, perhaps, by absolutely breaking rules, but certainly by stretching them as occasion requires. The fact is, that though certain limits as regards temperature, humidity, light, shade, etc., must be observed, results are obtained, not by following rules too closely, but by intelligent study of the requirements of the plants, adapting conditions to meet such, and correcting errors as they arise.

A GROUP OF CHOICE CATTLEYAS

The spray of four is of C. Angus, and the group of three is of B. C. Gertrude West. The centre one of the three lower blooms is B. C. Cluny, the other two being unnamed hybrids.

Grown by Mr. S. C. James. Photo by courtesy of "The Sun"

The majority of Orchids are among the most adaptable of plants. In England we grow in the same house, Orchids from the South, East and West, the minimum temperature being perhaps more important than a maximum. Witness the manner in which Western Orchids adapt themselves to your conditions. Such adaptations, I saw in many instances, break the calendar, but not the season; thus Calanthes of the vestita section were in full growth in Melbourne at Christmas. In England they would be dormant or in full flower—i.e., they flower in our winter, and in your summer. Cattleya Gaskelliana was in flower in Australia approximately at Christmas; with us it is winter flowering.

This prelude may not seem exactly relevant to Cattleya culture, but it may help Australian readers to realise the difficulty in writing about, and attempting to give cultural hints about similar plants grown 12,000 miles away, and it may induce them to realise the necessity of alteration in many details prevalent here; yet the principal rules followed in England hold good, broadly speaking.

In general terms, Cattleyas may be divided into groups; the labiata section distinguished by a club shaped pseudo bulb, carrying a single large elliptic leaf, and the diphyllous group characterised by a more or less tall, thick or thin stem-like pseudo bulb, carrying at its apex two or more leaves. In both the flowers are produced from the top of the pseudo bulb, the flowers being forced upward through a compressed sheath or modified leaves; more pronounced in the labiata types, but in both serving as protection to the incipient and tender flower spike.

Taking Cattleya labiata as typical, here in England the plant begins to grow in spring, develops its growth during summer, and flowers from the matured bulb in, or about October. Variations occur with other members, chiefly in the time of flowering. Cattleya Mossiae, for example, develops a sheath by autumn, but does not flower until May. C. gigas (Warscewiczii) flowers on or near the completion of its growth, but does not take any appreciable period between its growth completion and flowering as does labiata. Trianae, and Schroderae carry their sheaths through the winter, as does Mossiae, but produce their flowers earlier, Trianae often in January.

The other section, of which Loddigesii may be taken as a type, complete their growths, and then usually flower. C. Skinneri is a rigid exception, the sheath becoming brown and membranous during Winter, but flowers are seldom emitted before May.

Comprehensively the treatment of C. labiata consists in aiding the growth as much as possible, i.e., a warm moist atmosphere when growing; shading from the direct sunlight, particularly when the growths are developing; watering with discretion when growth is first seen—allow the compost to get moderately dry between waterings at this period; as growth advances, provided root action is normal, water more frequently, but never allow the compost to remain saturated for any length of time. As the growth gains strength and the leaf expands, the flower sheath can be seen, the bracts which sheath the growth are still green and of leafy texture, the upper one still surrounding and supporting the base of the young leaf. These bracts afford important indications to the grower. As the growth matures they eventually become membranous in texture, fitting tightly to the bulb, the upper part of which grows beyond them, leaving the leaf and crown of the bulb absolutely free; the bracts then act as a jacket, protecting the bulb from fluctuations of temperature. Unless insects are suspected, these membranes should never be stripped, nature having placed them there for a purpose. In the green state, these bracts do not 'fit' quite as closely, especially when any check has been sustained by the growth, caused perhaps by too frequent or infrequent waterings, a stagnant atmosphere or a low temperature continued for a period.

Water may lodge in them, and leads to discoloration; the effect is eventually seen in a smaller pseudo bulb, and its inability to push completely through the upper bract, the top of which may be above the base of the leaf, affording an entrance for insects and an opportunity for moisture to collect and lodge between it and the bulb, often inducing rot and disease.

As the autumn advances and the growths mature, more light must be given and more air to harden and ripen the growth, and water should be given more and more infrequently. Under natural conditions the flowers might be supported entirely from the flowering bulb, and those behind it, but under cultivation they are a slight strain on the plant, so water must not be entirely withheld—the grower can aid nature.

(To be Continued)

Orchid Display

A display of Orchid blooms will be held by the Orchid Society of New South Wales towards the end of August.

The Exhibition held last year was most successful and many members of the public saw what was perhaps the finest display of Orchids ever made in Sydney.

It is hoped and expected that this year all previous efforts will be surpassed, and readers are asked to watch the Press for further particulars.

It is proposed to make a small charge for admission.

Dendrobiums

C. T. GOSPER, *Lane Cove, N.S.W.*

● What a vast area of the world's surface do we find as the native habitats of this extensive family of the Botanical world. Most of India, Burma, Siam, the Eastern Archipelago, the north and eastern coasts of Australia and adjacent Pacific Islands abound in numberless varieties of this lovely Orchid. Some of the most desirable and largest coming alike from cold situations as well as from the warmest. Dendrobiums can be divided into two sections—those bearing flowers from nodes or joints in the growths, such as nobile, superbum, etc., and those throwing out racemes, such as chrysotoxum and bigibbum. Nearly all of the worthwhile Australian species will be found to belong to the latter type.

While the individual flowers of Dendrobiums are not, generally speaking, as spectacular as some of the other Orchids, it must be admitted that the quantity of bloom fully compensates for this. Where can we see a finer show of bloom than good old nobile, or thyrsiflorum, say, with a couple of dozen canes of flowers, can treat us to? Nobile is one of the easiest plants to procure and to grow successfully. It can be treated with a little warmth, or will do as well or better in a cool bush or glass house. The best result I ever had was in a lattice house with glass roof. The glass so placed is useful in the winter, when flowers are expected. Under cool treatment I have noticed the flowers are more prolific, and provided they are kept free from water drips, they last much longer. Nobile grown in a closed glass house, and especially if heat is employed, should be watched at this time of the year if bloom is desired instead of adventitious growths. They should be dried off till the pseudo bulbs show signs of shrivelling, then when it can be determined that bloom is assured, and not growths, water the plants to plump up the bulbs again and develop the size of the flower. Plants grown in a cold atmosphere will need no attention in this regard, as they seldom fail to develop every node into flowers. The cool house, therefore, seems to me to be the most congenial and happy home for them, and, incidentally, less attention is needed.

DENDROBIUM THYRSIFLORUM

A native of Burma, this delightful species does well out of doors in Sydney. The sepals and petals are silvery-white, and the lip golden-orange.

Photo by Mr. T. C. Harveyson

Have you ever tried growing nobile in staghorn fibre? Some of our enthusiasts will perhaps smile, but it will do no harm to try one or two, and see how their roots dive down and fasten all through it. They will make themselves so much at home that it will be difficult to get them out of the pots. With this as a compost water sparingly during the winter months, as the staghorn is very retentive of moisture. While on the subject of nobile, I would like to suggest what an interesting collection could be made of this variety, alone and with its hybrids. It has been more extensively used in hybridising than any other dendrobe, but even apart from this, the type varies so much that you could probably get an assortment of 20 or 30 different kinds, varying in shape, size, and colour. What a contrast between nobile alba and nobile nobilius! Place the two side by side and see what a nice picture they would make.

There is a phase of Orchid growing which does not seem to be very much practised here, and that is hybridising some of our indigenous dendrobes. Who knows but that some good thing might be evolved, and even if such did not eventuate, the time and effort would be pleasurably spent. I think that the varieties should be well chosen with a view to improvement in the offspring, such as falcorostrum with a coloured variety, or bigibbum with speciosum. Some of our members who are interested in this subject, or who have good collections of Australian varieties, should give us a little talk on them.

The Genus Dendrobium

P. A. GILBERT, *Lakemba, N.S.W.*

This is the conclusion of Mr. Gilbert's article, the other portions of which appeared in the last two issues.

● A list of the Sections of the Genus Dendrobium, mainly after R. Schlechter, with specific examples for each Section:—

CADETIA.—*trignetrum* Ridl., *hispidum* A. Rich., *funiforme* Bl.

DIPLOCAULOBIUM.—*longicolle.*, *utile* J. J. S. *regale* Schltr.

MICROPHYTANTHE.—*nommularia* Schltr.

DESMOTRICHUM.—*flabellum* Rchb. f., *comatum* Lndl., *Macraei* Lndl.

BOLBIDIUM.—*pumilum* Rxb., *Micholitzii* Rolfe.

RHOPALANTHE.—*crumenatum* Sw., *papilioniferum* J. J. S. *linearifolium* T et B.

STRONGYLE.—*uncatum* Lndl., *subulatum* Lndl., *teres* Lndl.

APORUM.—*leonis* Rchb. f., *grande* Hook. f., *aloifolium* Rchb. f.

OXYSTOPHYLLUM.—*atropurpureum* Miq., *excavatum* Miq., *carnosum* Rchb. f.

HERPETOPHYTUM.—*herpetophytum* Schltr., *nigricans* Schltr.

MONANTHOS.—*bilobum* Lndl., *Kondersii* J. J. S., *piestocaulon* Schltr.

EUPHLEBIUM.—*spurium* J. J. S., *amboinense* Hook. f. *inaequale* Rolfe.

GRASTIDIUM.—*acuminatissimum* Lndl., *pruinosum* T et B., *insigne* Rchb.

PLEIANTHE.—*pleianthum* Schltr.

MACROCLADIUM.—*steatoglossum* Rchb. f., *sarcochilus* Tin.

RHIZOBIUM.—*flagellum* Schltr., *desmotrichoides* J. J. S.

SARCOPODIUM.—*coelogyne* Rchb. f. *cymbidioides* Lndl., *acuminatum* Rolfe.

LATOURIA.—*macrophyllum* A. Rich., *spectabile* Miq., *Kingianum* Bidw.,

CERATOBIUM.—*veratrifolium* Lndl., *undulatum* R.Br., *antennatum* Lndl.

INOBULBON.—*muricatum* Fin., *munificum* Schltr.

ELEUTHEROGLOSSUM.—*canaliculatum* R. Br.,

PHALAENANTHE.—*phalaenopsis* Fitzg., *bigibbum* Lndl., *superbiens*, Rchb. f.

EUDENDROBIUM.—*nobile* Lndl., *anosmum* Lndl., *chrysanthum* Wall.

BRACHYANTHE.—*stuposum* Lndl., *pymaeum* Lndl.

STACHYOBIUM.—*eriaeflorum* Griff.

FYTCHIANTHE.—*barbatulum* Lndl.

CUTHBERTSONIA.—*Cuthbertsonii* F. v. Muell., *sophronites* Schltr.,

OXYGLOSSUM.—*subacaule* Reinw., *cerasinum* Ridl., *cyanocentrum* Schltr.

DOLICHOCENTRUM.—*furcatum* Reinw., *superans* J. J. S.

PEDILONUM.—*secundum* Lndl., *bracteosum* Rchb. f. *glomeratum* Rolfe.

PLATYCAULON.—*lamellatum* Lndl., *Treubii* J. J. S., *lamprocaulon* Schltr.

CALYPTROCHILUS.—*Mohlianum* Rchb. f., *Bauerlenii* Krsl.

AMBLYANTHUS.—*melanostictum* Schltr., *cavipes* J. J. S.,

KINETOCHILUS.—*crassicaule* Schltr., *pectinatum* Finet.

GOLDSCHMIDTIA.—*linguella* Rchb. f.

CALCARIFERA.—*mutabile* Lndl. *hymenophyllum* Lndl., *microglaphys* Rchb. f.

TRACHYRHIZUM.—*Zippelii* J. J. S., *trachyrhizum* Schltr.

DISTICHOPHYLLUM.—*formosum* Rxb., *Hosei* Ridl., *connatum* Lndl.

Building up a Collection

(*Continued from page 27*)

to orchid culture, and are based largely upon the fruits of my own experience.

I trust that I have contributed a little towards assisting these new recruits, although I am aware I have left unsaid many things that might have been added. I hope, too, that I have not unduly bored our expert growers, but I feel that at least I have provided them with ample material upon which to work, so that they may rear up and rend me and my works.

Building Up a Collection

J. MURRAY COX, *Brisbane, Queensland*

This is the third and concluding portion of this very interesting article.

I particularly remember a magnificent clump of *Dendrobium speciosum* growing in the scrub at the foot of Mt. Cordeaux, near Spicers Gap. This clump extended from three quarters of the way up the trunk of a great tree to the topmost branches, and when I saw it I counted over one hundred and fifty beautiful sprays of blossom on this one plant. The remarkable feature of the clump was, that the whole of the growth was upwards on the side of the tree where the rays of the morning sun could reach the roots. Smaller scrub trees had grown up round the giant, and where these had reached high enough to shut off the sun from the orchid, growth had ceased and decay had started. Again, on the slopes of Mt. Cordeaux where the undergrowth was sparse enough to allow sunlight to enter, the tree trunks were white with the beautiful blossom of *Sarchochilus falcatus*, and on the heights of the mountain a great clump of Kingianum waved its purple blooms in the full sunshine.

Now, from time to time I have heard it said by lecturers, that in caring for our orchids we should shield them from the direct rays of the sun, except in a few specific cases, such as terete forms of Vandas, Dendrobium superbiens, etc. My own belief, backed up by experiments to date, is that we should see that our orchids get a certain proportion of direct sunlight, with a few definite exceptions. I strongly recommend orchid growers, both beginners and old hands, to experiment carefully with sunlight treatment for their plants. At the present time I am growing certain Cymbidiums (both species and hybrids) out in the open with satisfactory results, and Vandas teres, tricolor, suavis and Agnes Joachim, and a number of exotic Dendrobiums are flourishing in the full strength of the sun from early morning until afternoon. During my travels I have visited the bush houses of some orchid growers, and found them so dark as to be almost like a dungeon—and their owners wondered why they couldn't get flowers.

As an instance of the beneficence of sunlight I would like to mention an experience. During a visit to Sydney about twelve months ago, I called on one of the Orchid dealers there, and while he was packing a few plants I had purchased, he said, "I have a few pretty dead looking plants here I'll put in for you—you might be able to do something with them in Brisbane." On first examination at home they looked too far gone to bother with. Some of them were definitely dead, but a couple seemed to have a spark of life flickering faintly. They were a *Vanda teres* variety *Andersoni*, in my opinion one of the choicest of orchids, and a rarely met with member of the Epidendrums. I potted them in a compost of about sixty per cent. old dry cow-dung and forty per cent. of leaf mould, and gave them a good soaking and put them out in the sunniest place in my garden, and then left them to be the arbiters of their destiny. When the garden was watered with the hose they had a drink, otherwise they were dependent upon the rain from heaven, or the kindly dew that fell upon them. To-day the Vanda Andersoni has made seven inches of growth, and has at the present time a very promising flower spike. The Epidendrum has also commenced to grow, and I hope will blossom in due season. I am quite satisfied that all the care in the world would not have had a fraction of the result brought about by the health giving rays of the sun. But, of course, in this as in everything else, discretion must be exercised. If we expose our skin to the fierce rays of the sun for long periods, we suffer from sunburn, until we have acclimatised ourselves. So, too, with the delicate tissues of the plants' foliage. The best way is to give sunlight in small doses at first until the plant has become accustomed to it. Thus a plant that has been grown in the shade for a period should gradually be shifted in position so that with each move it gets a little more direct sunlight. It is gradually enured to the effect of the rays, and is very soon able to stand full sunlight. A plant on first being submitted to full sunlight without this gradual breaking-in will probably lose a few leaves and have a few more scorched, but even so it will soon adapt itself to the conditions.

I firmly believe that many of our plants which have failed to flower in the past can be made to blossom by giving them sunlight, and I purpose experimenting further along these lines with some of my best specimens.

My remarks in this article have been compiled for the particular benefit of new recruits

(Continued at foot of previous page)

The Orchid Beetle

(Stethopachys Formosa)

V. W. A. MOLLER, *Brisbane, Q.*

● With the name "Orchid beetle," as mentioned, quite a number of people imagine that because they see small beetles they are all Orchid beetles, and one in particular which resembles the true Orchid beetle is known as the pumpkin beetle.

This beetle is much smaller than the Orchid beetle and the name by which it is known is Ceratia Hilaris. The pumpkin beetle is absolutely harmless where Orchids are concerned, so that the main thing is the identification of our pest.

The Orchids which this beetle favours most with its attacks seem to be our North Queensland Dendrobes, that is, Dendrobiums phalaenopsis, bigibbum and superbiens, usually laying its eggs down the centre portion of new growths. These eggs are small, elongated, and of a greenish colour, being very hard to distinguish unless your sight is particularly good. The period of incubation is approximately ten days, and the small larvae immediately proceed down to the heart of the new growths and will not be noticed for quite a time until your new bulb has been practically destroyed.

Of course, they also attack the outside portions of the new leaves, but as a rule, although a little damage may be done before you notice anything, one can generally check further damare by capturing the larvae, which are slimy, whitish individuals.

I might also point out that the adult beetle will attack the leaves of Orchids and disfigure them beyond recognition, and, of course, will damage the new bulbs when they may be only in half their growth.

The beetles are orange and black insects, being very hard, and require quite a lot of pressure before they may be flattened out. I find the method easiest to adopt if they are a little out of one's reach is to have a butterfly net of some description held underneath just where the beetles may have lodged on your plants, and in the other hand a long stick may be used to just tap the bulb of your Orchid and thus frighten the beetle into mock unconsciousness. When I say frighten the beetle, perhaps that may not be correct, as I fancy he is a little more cunning than we human beings are, and my contention is that he actually shams death and drops to the ground with his wings and legs folded together. When they drop to the ground in this manner it is very difficult to locate them, as they usually fall on their backs and, showing the underneath portion, it is extremely difficult to see them.

At certain seasons of the year, particularly in the late spring and early summer, as well as the autumn, one must keep a careful lookout for these insects, as if they go unobserved, multiplication sets in so rapidly that it would be almost impossible to rid your plants of the pest. For instance, when the adult female lays her eggs on the plant in quite a number, you will readily understand that with the larvae left alone to feed until it becomes of mature size, there will be quite a number of these which naturally in turn will pupate. The pupation takes place usually at the base of the plant, among the roots preferably, as strangely enough in spinning the cocoon the outside portion resembles small white twisted Orchid roots in a bundle, and would easily be passed unnoticed.

Practically the moment the beetle emerges from this cocoon it begins to attack the plant where it was born, and if suitable food is not there to its liking it will soon attack some of the other plants. I have found that the flowers of Vanda tricolor seems very susceptible to the attacks of the beetle, and before I covered the whole of my bush house with perforated zinc I was never able to have the pleasure of seeing my Vandas in full flower unblemished. It seems as though the flowers of any Orchids are preferred to the young growths or roots of Orchids, more especially those which are highly perfumed, and therefore I advise you to keep a very strict lookout for the beetle when you have any such blooms open.

As regards control of the Orchid beetle, it is a very difficult thing to advise which is the best method to adopt, as the using of some of the chemicals which may prevent the beetle from attacking your plants may be very detrimental to the plant itself, and in some cases may cause burning. Some people favour a mixture of white oil, such as albolium, and one or two drops of nicotine sulphate. The albolium is used really for the purpose of making the other adhere to the leaves, and of course it would need a mixture of approximately one of albolium to 50 parts of water and about 3 drops of nicotine sulphate. Personally, I do not like using anything in the way of poisons on my Orchids, and would rather attack them in the open without the aid of chemicals. We all know that

(Continued on page 22)

The Orchid House and Cultural Conditions

A. B. TANNER, *Coorparoo, Q.*

● Orchid culture is not only a hobby to the enthusiastic amateur but an intense study; and this fascinating plant, unlike its rivals in the flower world, requires concentrated attention if we are to achieve success for our efforts. With each individual type of Orchid we must consider firstly, the conditions under which it, in its natural habitat thrives. The conditions, for instance, under which a Cymbidium would thrive would be entirely foreign to the requirements of the Phalaenopsis, and growing these types under the one roof would invariably mean a vigorous life for the one and extinction for the other. It follows, therefore, that we must introduce cultural conditions to our Orchid houses, similar to those to be found in the natural surroundings of the relative types of Orchids. Having ascertained this knowledge, we begin to improve on nature, by controlling the various elements that are so essential to Orchid plant life. We control water by means of a glass roof, we control heat by the use of shading and a heating plant, and ensure a sweet and healthy atmosphere by the judicious use of ventilators, and thus we find that the Orchid enthusiast who makes a practical application of his knowledge can surpass nature by producing more and better blooms.

A FINE SPECIMEN PLANT OF CYMBIDIUM TRACEYANUM

Grown by Mrs. L. M. Thompson. Photo by Mr. E. A. Hamilton

From my limited experience, but more from observation, I am of the opinion that the majority of types of Orchids, imported or otherwise, that can be grown in Queensland, will thrive better if grown under glass, mainly due to the fact that the elements can be adequately controlled. The enthusiast, however, who does not possess a glass house need not become despondent, as excellent results can be obtained by growing Orchids in bush houses if the structure is built with care necessary to overcome adverse climatic conditions.

The Orchid grower usually has a decided leaning towards certain types of Orchids, and although an experienced grower may be reasonably successful with a large range, it will be generally noticed that he is more successful with certain types, and it is usually the latter that fascinate him most.

As the cultural requirements of the different types of Orchids vary, I propose to deal at the outset with the popular types that I consider thrive better under glass. The Prince of Orchids, the Cattleya and allied genera, undoubtedly excels under glass house conditions. The evolution of this type over many decades has produced the modern hybrid, a much more hardy plant than the original species. Notwithstanding this fact, Cattleyas are subject to severe checks in their growth when a sudden change of temperature occurs, or when draughts are prevalent, but these conditions are not so likely to occur in the glass house as with the ordinary bush house. The delicate texture of the Cattleya flower also will not withstand the ravages of rain and wind as well as the flower of the Cymbidium or Vanda, which grows so well in tropical bush houses.

The compost that I have found to suit the Cattleya best is an equal mixture of Osmunda fibre, fibrous peat and spagnum moss. The introduction of the two latter materials appears to conserve moisture better. It is a good idea to place the spagnum moss in the pot in a line over which the rhizome of the plant is likely to grow. There is a tendency with this method for the moss to attract an early root formation. The compost should be firmly packed and finally neatly trimmed with scissors. When the potting is completed, the compost should be level with the edge of the pot and shaping concavely towards the centre. Cattleyas and the allied genera during the growing period require an abundant supply of moisture, whilst in the dormant season sufficient moisture only to keep the bulbs in a plump condition is required. Spraying the plants themselves will impart moisture and will also keep them in fresh condition.

Phalaenopsis, another beautiful type of Orchid very popular for the lasting quality of its blooms, revels under the humid conditions that we find prevail in the glass house. This type that flourishes in a moist compost in the growing period is very susceptible to a fungus disease, that will disfigure the attractive foliage, and under very wet conditions, in the dormant period, the leaves will completely decay, and even under glass it is not uncommon to lose the plant. Vanda Sanderiana, the most magnificent of the Vandas, is a type that requires very warm and humid conditions.

The compost required for Phalaenopsis, Vanda Sanderiana, and, in fact, all Vandas, is entirely fresh spagnum moss, on a base of charcoal and crocks. The roots of these types are very large and eagerly absorb moisture. The spagnum moss should be kept in growing condition by the use of tank water only. A weak solution of liquid cow manure will be found beneficial to spagnum moss, and I have also experienced success in applying this solution to a Phalaenopsis plant itself. Both Vandas and Phalaenopsis thrive better in wood baskets, this method affording ample scope for root development.

Other types, though not so popular, that prefer warm treatment are Coelogyne, Selenepedium, the variegated leafed Cypripedium and certain types of Dendrobium. Although contrary to the teaching of some text books, the popular compost for Cypripediums and Selenepediums is a mixture of leaf mould and fibrous peat. The introduction of well rotted cow manure, bone meal and charcoal will considerably improve the compost. This type of Orchid also requires moist conditions during the growing period and whilst in the dormant season the compost should never be allowed to dry out. Pots are the best type of receptacle for this variety of Orchid, nevertheless I have observed them on rare occasions growing well in baskets.

Dendrobiums generally thrive well in pot or basket, and like most Orchids require an abundant supply of water in the growing period. Do not pot Dendrobiums in large receptacles; the smaller the container, within reason, the better. The compost I have found most suitable for the Dendrobe is an equal proportion of Osmunda fibre and fibrous peat.

As the former types referred to are so adversely affected by over-indulgence in water (particularly in the dormant period), the effect of draughts, cold and rapid changes in temperature, it is essential, if we are to be successful in their culture, to effectively control these elements, and this can only be successfully done under glass house conditions. We must not, however, carry our zeal too far by creating a stuffy atmosphere in the Orchid house, as these conditions are entirely foreign to plant growth. Heat is not the only essential condition, as the atmosphere must always be fresh.

Mr. Tanner, in the next issue, will give his conception of a suitable Orchid glass house.

Cattleya Bowringiana

This species, a photo of which appears on page 21 of this issue, is a native of Central America. It is noted for its freedom of flowering, its delicate colour and neat shape. In its natural state it carries up to twenty of its rose-purple blooms on each spike. In size, it attains a diameter of up to three inches.

QUALITY'S
HIGHEST STANDARD,

Steadfastly holding to our initial aim of creating good work alone, we have built a reputation in colour engraving and all branches of process work . . . none claim to make better . . . none actually are consistently as good.

PHOTO-ENGRAVING
ART COMPANY LIMITED

HALF-TONE AND COLOUR PLATE SPECIALISTS

CENTRAL BUILDINGS, 89 WILLIAM STREET, SYDNEY
TELEPHONE F 1151 - 2 - 3

ORCHIDS

We hold an immense stock of FINE HEALTHY ORCHIDS
A Wonderful Selection of

HYBRID CATTLEYAS
LAELIO-CATTLEYAS
CYPRIPEDIUMS
ODONTOGLOSSUMS
MILTONIAS

Plants of flowering size. Over 35 years' experience in export packing to Australia
Prices very reasonable. Write for our CATALOGUE without obligation.

MANSELL & HATCHER
Limited
Dept AOR. RAWDON, LEEDS, England

ORCHIDS

Special Offer *All Post Free*

6 different species CYMBIDIUMS	24/-
6 different species CYPRIPEDIUMS	24/-
12 different species showy DENDROBIUMS	38/-
12 different showy species, selected from above kinds and others	28/-
CALADIUMS	
24 different fancy named varieties	24/-

NOTE.—These prices are in English currency.
ALL POST FREE

Over 24 years exporting experience at your service

ORCHID CULTURAL BOOKLET
PRICE 1/-

Free with all Orders

Wholesale and Retail Catalogues of Orchids, Caladiums and Seeds Free on Request.

The Chandra Nursery
P.O. Rhenock Sikkim 54
INDIA

Splendid stock of

CATTLEYA, CYMBIDIUM,
CYPRIPEDIUM, ODONTOGLOSSUM
and PHALÆNOPSIS hybrids.

Over 3 acres of newly-built houses devoted to Orchids

FLANDRIA
BRUGES (Belgium)

SANDERS
St. ALBANS
ORCHID GROWERS, HERTS., ENGLAND

OVER 50 YEARS' EXPERIENCE
AT YOUR SERVICE

TO SUIT ALL HOUSES **ORCHIDS** TO SUIT ALL CLIMES

WRITE FOR
Special Offers—Latest Price Lists
and
"Cultivation of Orchids"

An illustrated and interesting Book free on application to Members of the Orchid Society of New South Wales

SANDERS ORCHID GUIDE
A complete work on all best known species
1927 EDITION—POST FREE—21/-

ORCHIDS

Cymbidiums — Cattleyas — Dendrobiums — Cypripediums, &c.

You get Good Plants at Keen Prices from

Armstrong & Brown

Tunbridge Wells, England

* * *

Write for Price Lists. All orders received shall have our very best attention in packing and selection of the plants.

ORCHIDS

Orchids of merit in great variety
Ranging from seedlings to specimens
Choice Exhibition or Commercial varieties
Hybrids from parents of distinction
Interesting Botanical Specimens
Delivered all over the world, by:

Stuart Low Co.

Nurseries: Jarvisbrook, Sussex.

Head Office: Bush Hill Park, Enfield, Middlesex, England

Catalogues on application. Inspection of our houses invited. Offer of collections.—small or large—prepared on request.

The Scarlet

DELPHINIUM

Nature's gift to Garden Lovers—the Flower of the Future

Tall growing, free flowering, well branched habit. True Scarlet in colour, hardy, easily grown, long lasting. Plant now.

4/- each. 6 for 21/-. Posted free

IFAFA LILIES

Hardy, free flowering in 5 distinct shades. White, Yellow, Red, Apricot and Pink. One of each, 6/-

Philip Montague

Bulb Specialist

Frankston, Victoria

W. J. HAGGETT

370 PARRAMATTA ROAD
PETERSHAM

* * *

Maker of fern tubs and casks to any size.

* * *

Petersham 3074

ORCHIDS OF SIAM

Sent to all parts of the world in any quantity

Only strong and healthy plants supplied

Lists free on application

The Bangkrabue Nursery

24kh. Phaya Klahom's Lane
BANGKRABUE, BANGKOK, SIAM

Notice to Advertisers

All enquiries as to Advertising space in this "Review" should be addressed to the publishers:—

Shepherd & Newman, Pty Ltd.
YURONG STREET
SYDNEY, N.S.W.

INDIAN ORCHIDS

Fine collections of showy Orchids for £1, £2/10/-, and £5. Packing and Postage free to any address.

G. GHOSE & CO.

Exporters of Orchids, Liliums and Himalayan Flower Seeds.

TOWNEND, DARJEELING, INDIA

NATURAL HISTORY BOOKS

New and Second-hand, including a special purchase of 1600 from the Library of the late W. Howat Esq. Full list on request. Also FIELD NATURALISTS' REQUISITES, MICROSCOPES, Telescopes, Field Glasses, Survey Instruments, etc.

N. H. SEWARD PTY. LTD.
457c BOURKE ST., MELBOURNE

By Appointment to the Sikkim Durbar

Headquarters for everything in Indian Orchids, Bulbs, and Himalayan Flower Seeds

12 Cymbidiums, 50/-; 12 Cypripediums, 55/-; 12 Grand Dendrobiums, 36/-; 6 Vandas, 24/-; 25 Different Showy Orchids, 50/-; 100 Eucharis Lily Grandiflora, £6. Post Free. Cash, please.

Catalogue free.

Get your requirements from the officially recognised reliable Firm:—

L. B. PRADHAM & SONS
Post Pakyong, Sikkim, INDIA

SIAMESE ORCHIDS

Ærides, Cypripediums, Dendrobiums, Phalænopsis, Vandas, etc., etc., etc., at reasonable prices; also willing to exchange.

PHRA MAHA VICHAI

591, KADICHIN, BANGKOK, SIAM

WATER LILIES

Six distinct colours—flesh, rose, white, yellow, red, salmon, for 27/6, or 5/- each posted.

J. OVERALL
Darwin Nurseries
Sulphur Creek . . . TASMANIA

FRED A. MASHMAN Ltd.

CROYDON ROAD, HURSTVILLE
At Kingsgrove Railway Station

FLOWER POT MANUFACTURERS
F.A.M. SPECIAL AERATED ORCHID POTS

CHEAP AND EFFECTIVE

'Phone LW3113

If you are a flower lover, become a member of the Orchid Society of your own State; and join in appreciation of the climax of plants' evolution. Visitors welcomed at meetings.

The Orchid Society
of New South Wales

Meets every month on alternate last Tuesdays and Thursdays, in Room 507, Phillip House, Phillip Street, Sydney at 8 p.m.

The dates of the next meetings of the Society are as follows:—

JUNE:	THURSDAY, 24th	AUGUST	THURSDAY, 26th
JULY:	TUESDAY, 27th	SEPTEMBER:	TUESDAY, 28th

A hearty invitation is extended to all interested in Orchids to attend.

Communications regarding the Society should be addressed to:

T. H. JAMES,
67 Arabella Street, Longueville.
'Phone, B6351

Queensland Orchid Society

President:
MILES R. FOX
Queensland Fruitgrowers' Association
BRISBANE

Secretary:
T. C. HARVEYSON
G.P.O. Box 2002 X,
BRISBANE

Meeting Place:
MINIATURE RIFLE RANGE BUILDING,
Boundary Street,
BRISBANE

Meetings held on Second Friday of each month

Printed and Published in Australia by the Orchid Society of New South Wales
G. Hermon Slade, Hon. Editor.
Wholly set up and printed in Australia by Shepherd & Newman Pty Ltd., Yurong Street, Sydney.

TAYLOR'S

Orchid Growers, Importers and Exporters

5 ACACIA STREET, BELMORE, N.S.W. 'Phone: UL1045

Our long experience in the culture of orchids is at your disposal, we cordially invite you to inspect our comprehensive stock of fine plants. We also give advice (free) on the construction or alteration of houses suitable for the cult. All postal enquiries receive our prompt attention. Fully illustrated catalogue on application, also contains growing instructions.

CATTLEYAS

A big selection of very fine Cattleyas, Laelio-Cattleyas and Brasso-Cattleyas at prices ranging from 21/- to 30/- each. We have also strong, well-grown plants of CATTLEYA REMY CHOLET, priced at from 30/- each. This variety is one of the very finest, and we are offering robust, healthy plants which will flower on the next bulb. Here is an opportunity to secure a variety worth pounds for the price of an ordinary plant—and you may secure something quite exceptional among Cattleyas.

CYPRIPEDIUMS

We have a very large range from which to choose at prices for Species from 3/6 and for Hybrids from 7/6 each. Fine plants of Cyp. Callosum are 5/- each, with extra large plants at 7/6.

TAYLOR'S

ORCHIDAL

A proven German Orchid Fertilizer which produces remarkable growth and magnificent dark, almost black-green, foliage.

PRICE: 6/- per ounce.
£4 per pound. Post free.

One ounce makes approximately 30 gallons fertilizer.

●

Sole Agents:

W. Hermon Slade & Co., Ltd.,

Manufacturing Chemists,
ROSEBERY AVENUE,
ROSEBERY

Postal Address: BOX 1540 D.D., G.P.O., SYDNEY.

196. 7-2

Price 1/6

Australian Orchid Review

The Official Organ of
The Orchid Societies
of
New South Wales
and
Queensland

Officers of the Orchid Societies of New South Wales and Queensland

New South Wales

President:

His Honour Judge H. F. MARKELL, K.C., B.A., LL.B.
"Kooyong," Hastings Road, Warrawee

Vice-Presidents:

E. A. HAMILTON
16 Hercules Street, Chatswood

Rev. H. M. R. RUPP
The Rectory, Raymond Terrace

Hon. Secretary:

T. H. JAMES
Arabella Street, Longueville

Hon. Treasurer:

L. F. HAWLEY
121 Middle Harbour Road, Lindfield

Committee:

C. A. JAEDE, M.B.
4 Rodney Street, Mascot

S. C. JAMES
39 Duntroon Ave., Roseville

Hon. Editor

G. H. SLADE, B.Sc.
"Raiatea," Oyama Ave., Manly

"Review" Sub-committee:

C. T. GOSPER
View Street, Lane Cove

Hon. Sub-Editor

R. M. STEWART
14 Bannerman St., Neutral Bay

Queensland

Patron:

Sir LESLIE ORME WILSON, P.C., G.S.I.E., G.C.I.E., C.M.G., D.S.O.

President:

MILES R. FOX
Cleveland

Vice-Presidents:

M. P. CAMPBELL
Ruth Street, Wilston

S. HARRIS
East Innisfail

Dr. D. A. HERBERT, B.Sc.
47 Main Street, Woollowin

P. A. LeFEUVRE
Wickham St., Ayr.

Lt.-Col. A. T. JACKSON
Roy St., Auchenflower

J. SKERMAN
Box 6, P.O., Maleny

Hon. Secretary:

T. C. HARVEYSON
P.O. Box 2002X, Brisbane

Hon. Treasurer:

J. R. TANNER
Phelan St., Clayfield

Hon. Technical Adviser:

C. T. WHITE
Botanic Gardens, Brisbane

Hon. Auditors:

J. MURRAY COX
Equitable Life Building, Queen Street, Brisbane

A. B. TANNER
Geelong Ave., Coorparoo

Committee:

L. F. HAYES
Primrose Terrace, Red Hill

A. P. BLAIR
Miskin St., Toowong

R. G. FERGUSON
14 Palmerston St., Annerley

A. W. HIGGINS
219 Gregory Terrace, City.

C. A. HILSDEN
Junction Rd., Clayfield

T. RICE
Prout Street, Camp Hill

W. McK. ROBERTSON
City Building, Edward Street, Brisbane

J. SMOLENSKI
Junior Terrace, Northgate

Now is the Time to Secure . . . .

ORCHIDS

Special Offer of 6 Assorted Orchids

Including Cypripediums, Dendrobiums, Cymbidiums and Vandas, for 25/-.

All the above are potted and are ready to be placed in the bushhouse or cool glasshouse.

These Plants can be inspected and purchased at our Nursery

We sell Orchids, buy Orchids, and exchange Orchids

A Fine Illustrated Catalogue with Cultural Directions, &c., is now available Free to all Orchid Enthusiasts
(Please add 2d. postage)

Best Quality Todea Fibre, Finest Growing Sphagnum Moss, 3/6 per bushel bag.
Celluloid Labels, 3/6 per 100.

Orchid Pots (with cut sides and holes for hanging), 4in., 3/6 per doz.; 5in., 4/6 per doz.; 6in., 6/- per doz.; 7in. 8/- per doz.

Postage or Freight Rates Extra on all these Sundries

Ask our advice on the growing of these beautiful plants, and we invite your questions.

Inspection Cordially Invited

J. BISSET

'Phone: Drummoyne 1124

48 WAREEMBA STREET, ABBOTSFORD, N.S.W.

THE ORCHID REVIEW

● Founded in 1893, by the late R. A. Rolfe, of Kew. The only Journal dealing exclusively with Orchid Lore, featuring articles on the History, Cultivation, Hybridization, and all matters of interest to the Connoisseur, Amateur, and Trader.

Exhibition Reports and Registration Records of new Hybrids accurately kept and published.

Price, One Shilling and Sixpence, monthly, postage free. Back volumes and complete sets, bound or unbound, can be supplied from

ORCHID REVIEW LTD.

5 Tavistock St., Covent Garden
LONDON, W.C.2

CYMBIDIUMS

Smart's Garden Service

for Cymbidium Species and Modern Hybrids

Our collection of Cymbidiums — both species and hybrids — is worthy of growers' attention. All mature, healthy, and vigorous specimens, our stock contains the very latest and best varieties procurable from the leading overseas growers, as well as the proved old favourites.

FOR SIZE AND QUALITY WE ARE UNEQUALLED

PRICES: From 25/- to £5

We also cater for every kind of garden shrub and plant.
Seedlings of Special Quality.

AZALEAS and HYDRANGEAS in great variety. Prices competitive.

Visitors always welcome. Stroll round our grounds and choose plants to your requirements. Situated on the left-hand side of Pacific Highway, between Gordon and Pymble.

Smart's Garden Service
819-857 PACIFIC HIGHWAY, GORDON, N.S.W.
'Phone JX3052

Stock Nursery: H. E. SMART, Sobraon Road, Eastwood. Phone: Epping 1439

BLACK & FLORY

SLOUGH

ENGLAND

Cablegrams: "Orchids Slough"

●

Vigorous and clean plants in all sections.

Unrivalled in Hybrid Cattleya, Brassocattleya, Albino Cattleya and allied hybrid genera. Collections from £6 per dozen.

Cypripediums: The demand in recent years has exceeded the supply of this increasingly popular orchid, but we hope to make offers next spring from our large developing stock. We have distributed many of the best Cypripediums in cultivation.

Odontoglossum hybrids in fine plants and great variety at £3 per dozen.
Miltonias Odontiodas Cymbidiums

AUSTRALIAN ORCHID REVIEW

Volume 2 September, 1937 No. 3

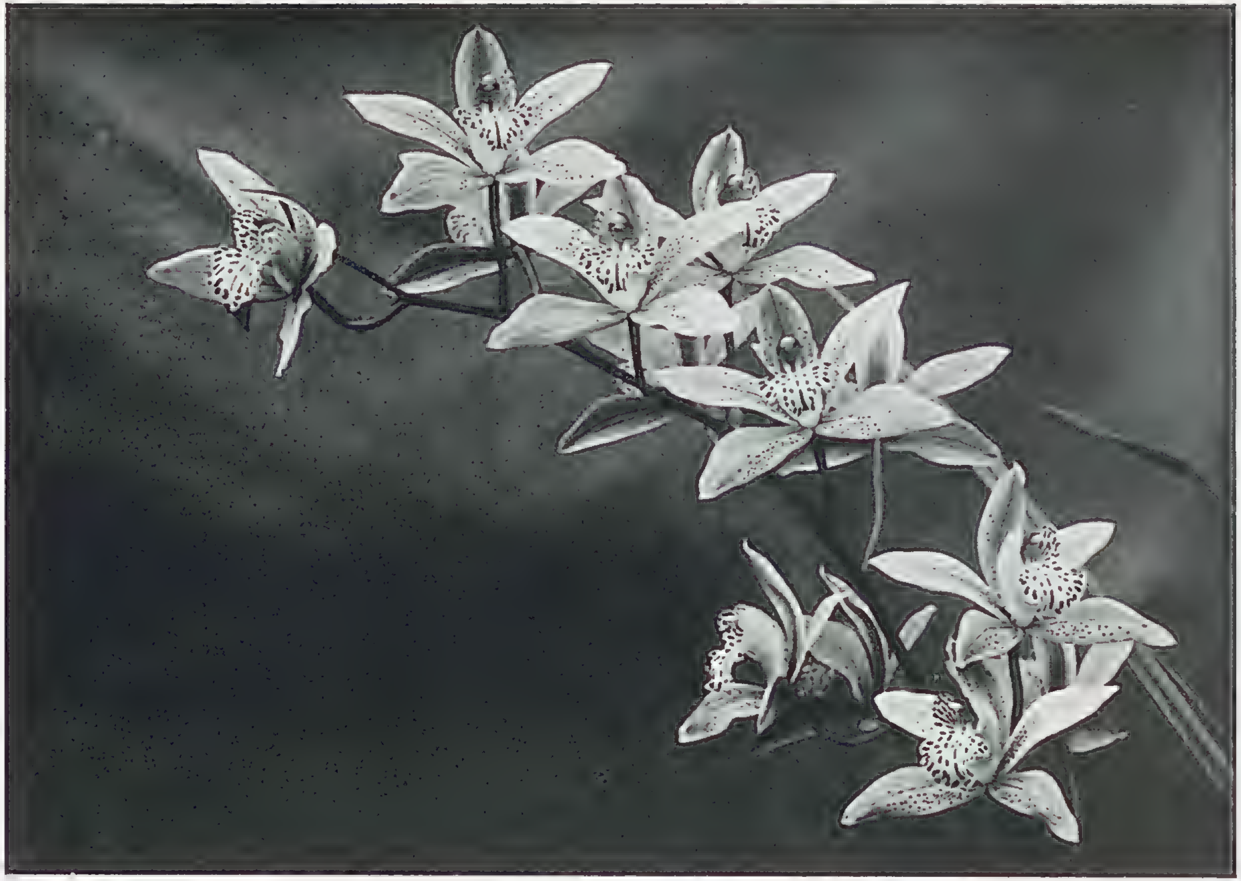
Contents

Arachnanthe Lowii ... 18
A Visit to the Newcastle Growers 25
Cattleyas 7
Cool House Culture 20
Correction 8
Cymbidium Devonianum 28
Cymbidium Gammieanum 29
Cypripedium Charlesworthii 19
Dendrobium phalaenopsis 20
Disas ... 23
Do Orchids Think? 16
Editorial—Protection for Our Native Species 3
Notice to Contributors 29
Orchids and the Man 21
Orchids in Japan and the Philippines 13
Orchids in Sumatra 17
The Collection of Orchids in South America 30
The Genus Sarchochilus 9
The Orchid Circle of Newcastle 28
The Orchid House and Cultural Conditions 5
The Orchid Society of New South Wales ... 15
The President of the Orchid Society of New South Wales 4

INDEX TO ILLUSTRATIONS

An unnamed Cattleya hybrid 7
A view in one of Judge Markell's Houses 5
Brasso-Cattleya Cliftonville 15
Brasso-Cattleya Pauline 13
Cymbidium Calypso 2
Cymbidium Gammieanum ... 29
Cymbidium Hera x Gattonense 25
Cymbidium Pauwelsii 14
Cypripedium Charlesworthii 19
Cypripedium Sullivan 21
Disa grandiflora 23
Group of Cypripediums 17
Judge Markell 4
Phalaenopsis Rosenstromii 11
Sarchochilus Fitzgeraldii 9, 10

Subscription: 6/- per year, post free.



CYMBIDIUM CALYPSO

A choice and pretty hybrid of Cooperi x Coningsbyanum. The colour is pale pink, spotted with dark red, the lip being of darker shading striped and spotted with red.

Plant grown by Mr. S. C. James. Photo by Mr. E. A. Hamilton.

Australian Orchid Review

Editorial

Protection for our Native Species

● A problem to which too little attention is given by members of Orchid Societies is that of safeguarding for posterity our rapidly disappearing native species.

Under existing conditions, complete extinction faces many of the most beautiful of them within a very short space of time and we, as united bodies of Orchid lovers must direct our attention towards easing, at least, the seriousness of the position. It is our duty to endeavour to do so.

Obviously, many aspects of the problem are beyond control. The spread of settlement and the timber industry necessarily encroach upon the Orchid's haunts and drought and bush fires take large toll of them. But there are other aspects which can be controlled. We refer to the almost unchecked collection and sale of our indigenous Orchids.

Under present legislation—The Wild Flowers and Native Plants Protection Act 1927-31—certain Orchids are protected, but, unfortunately, there has been little pause given by the Act to the sale of these plants—since it covers only collections from Crown Lands. It does not go far enough, and one has only to visit the Sydney Municipal Markets, for example, frequently to see hundreds of these plants still for sale—all collected from private lands. And hundreds more are sent overseas in exchange for exotic Orchids.

Two objections to further control present themselves. Firstly, prevention of sales of native Orchids by owners of private lands would be somewhat of a restriction on the free use and enjoyment of that land, and secondly, restriction of the selling of native Orchids would, to some extent, interfere with vendors' livelihoods.

But each of these objections can be answered by reference to contemporary legislation to protect our unique marsupial animals. These laws are rigidly enforced—the valuable skins cannot be sold and severe penalties attach to being in possession of them. The only possible step was taken, and we ask the Governments of the Australian States to amend existing legislation to protect our Orchids too, while there is yet time.

In the case of our animals, the Governments recognised the prior rights of the citizens—present and future—of our country to them, above the claims of the few individuals who profited from their destruction and there is no real reason why our native Orchids—as unique in their way as our marsupials—should not receive the same consideration.

Legal-minded readers will, no doubt, point out the fact that there is no private ownership in wild animals but that Orchids, growing in the soil or affixed to trees or rocks on the land are private property and that this must prevent their protection by legislation similar to the Birds and Animals Protection Act 1918-30. This objection, however, is merely straw-splitting. A breeder of Koalas, for example, who has "tamed" the animals and so acquired ownership, still cannot dispose of the skins contrary to the Act.

We do not seek to prevent entirely the sale of native Orchids. We do ask, though, that it be effectively controlled. This control can be achieved quite easily by the issue of permits to approved collectors — the permits restricting collection to certain specified areas where clearing or timber getting is in progress, or to a specified number of plants of particular varieties.

This would do much to prevent this rapid extermination of so many of our natives, and without effective control and rigid protection even on private property, sanctuaries and reserves are useless.

It is high time that the Orchid Societies in Australia took more active steps towards bringing this necessary control into being and the "Review" will appreciate the views of readers upon this vital matter.

The President of the Orchid Society of New South Wales

HIS HONOUR
JUDGE MARKELL
K.C., B.A., LL.B.

Judge Markell is about to enter his fourth terms as President of the Orchid Society of New South Wales, having held this Office since the Society's inception. Fifty-two years of age, the President has been an enthusiastic orchid grower for some eight years, and possesses the largest collection in the State. Educated at Sydney Grammar School and the University of Sydney, he obtained the Degree of Bachelor of Arts in 1906 and that of Bachelor of Laws in 1911, and in the same year he was called to the Bar, where he practised with outstanding success, becoming a King's Counsel in 1929. After serving on several occasions as an Acting Judge, he was appointed to the Bench of the District Court in 1935. Judge Markell's beautiful home at Warrawee, on the Heights of the North Shore Line, is the Mecca of all Orchid lovers.

The Orchid House and Cultural Conditions

A. B. TANNER, *Cooparoo, Q.*

This is Part 2 of Mr. Tanner's three-part Article.

● I now propose to impart to the amateur, without going into too much detail, my conception of a suitable glass Orchid house.

The construction of a glass house requires considerable thought, and attention to detail, which unfortunately is not always given. In my travels I have inspected many glass houses that have been totally unfit for Orchid or other tropical plant culture, and we find the enthusiast is disappointed in his attempt to obtain the ideal conditions that are incidental to a structure of this nature if properly built. I have seen elaborate glass structures built on the west side of large shady trees; in the shade of buildings, the roofs slanting downwards towards the westerly or southerly direction; and many other obvious defects too numerous to mention.

It is now five years since I constructed my first glass house and since my initial attempt I have built two additional structures, and to be frank, I would welcome the opportunity of trying my hand once again, if only to make certain of building one large enough, as I have yet to see the Orchid house that is not over populated with plant life, thus encouraging disease and pests.

In the construction of a glass house our attention is firstly given to a suitable location. As we can devise means to control the elements previously referred to, our best location is entirely in the open, away from shade of any description. The dimensions of a structure that should satisfy the most enthusiastic would be 30 feet long by 15 feet wide. The width, per-

A VIEW IN ONE OF JUDGE MARKELL'S HOUSES

Plants shown include Cattleya Bowringiana, Laelia anceps, Vanda coerulea, Arachnanthe Lowii &c.

Photo by Mr. H. J. R. Overall.

haps, is more important than the length, as it is desirable to have two sides and one centre staging.

The structure longitudinally, if of the gable roof type, should point north and south, as with this direction it is easy to visualise that in the winter months, when the warmth of the sun is so desirable, we obtain the maximum advantage during the day.

The walls of the house can be built of concrete, or brick for preference. I have observed the walls built of fibro cement and wood, but in the case of the former two not only is the structure more substantial, but the preservation of moisture is more sustained. The walls would need to be at least 4 inches thick with three ventilators of about 12in. x 6in. in the side walls, and two ventilators of the same size at each end. The ventilators should be situated midway between the floor and the staging, and should be covered with gauze, necessary for the exclusion of insects. The height of the walls would need to be approximately 5ft 3in., including say, 9in. let into the ground and resting on a satisfactory foundation.

The type of glass house I prefer is usually to be seen at the professional horticulturalists, the rafters resting directly on the walls of the house, and without any side glass. When glass is used at the sides of the house there is a tendency, when the roof is covered during the summer months, for the plant growth to go towards the uncovered glass at the sides. There is no necessity for side glass in my opinion, and brick or concrete is cheaper.

The pitch of the roof requires thought, and depends to a large extent upon the width of the house. The best method of determining the pitch is to make certain that the height of the roof, at the inside edge of the side benches is at least 6 feet from the ground, otherwise the glass is likely to be broken by the head of a tall person walking inside the structure.

Twenty-six or twenty-one ounce glass is strong enough. When spacing rafters, always allow at least ¼-inch for glass expansion, which will take place in mid-summer. For strength, the rafters should be 3in. x 2in. or 4in. x 1½in. pine, well painted. Pine well painted is preferable to hardwood, as there is not so much tendency to warp. The glazing of the roof is done in the ordinary manner, but it is a good plan to be generous with the putty, as the roof must be waterproof.

Adequate ventilation is necessary in the roof. For the size of the structure I suggested, viz: 30ft. x 15ft., there should be at least two ventilators at each side hinged so that they may be operated at will. Ventilation properly controlled will provide a free circulation of air, without draughts, and will also keep the atmosphere sweet. The glass roof should be frosted on the inside with ordinary mill white, thus obtaining the maximum of light.

As it is necessary during the summer months to shade the house, and afford protection against breakage, a framework should be built from 6 to 8 inches above the roof, on which is placed ½-inch mesh wire netting; this should aid in combatting hail or the troublesome youth of the neighbourhood. The best type of shading for the amateur is perhaps ordinary hardwood battens, 2 x 5-8, spaced during mid-summer about 1-inch apart, and as the heat of the summer diminishes, alternate battens may be romoved to meet the cooler climatic conditions.

When erecting the benching, which should be of concrete if possible, care must be taken to ensure that there is sufficient space to allow for ample plant growth towards the roof. Provided there is 18 inches of space to the roof from that part of the bench immediately adjacent to the side wall no inconvenience is likely to be encountered; the space increasing towards the edge of the bench, according to the pitch of the roof.

Having constructed the glass Orchid house, our attention is now directed towards maintaining that humid atmosphere that is so essential for a strong and vigorous growth in our plants, and this is obtained by judicious handling of the ventilators, shading and the hose. In the mid-summer months the floor and staging can be hosed daily, and during the week-ends your time can be profitably occupied by administering a second hosing at mid-day. The ventilators can be left wide open during the day, and at night time, to prevent a too rapid change of temperature, the roof ventilators may require closing. It is not as essential to close the wall ventilators, unless, of course, a strong wind is blowing, in which case the ones facing the direction from which the wind is blowing may be closed. Whilst on the matter of damping the house, care should be taken that water is not permitted to lodge in the young growths, as with the steamy atmosphere the growths are likely to decay. Some successful growers I know adopt the practice of watering the compost and plants with the hose. This method, of course, is a time saver, but rain water, unlike tap water, contains no chemicals and the compost will therefore last much longer and remain in a sweeter condition.

(*Continued on page* 12)

Cattleyas

E. COOPER, *St. Albans, England*

This is the second part of Mr. Cooper's article, which commenced in our June issue. Readers are again reminded that this article was written in England and that the seasons mentioned, except where otherwise stipulated, are those of England.

● In *labiata* the bulb is usually fully matured at the flowering time, but not always is it the case with other species. *C. gigas* is seldom so, and watering must be continued till cessation is indicated by the "finish" of the bulb. *C. Mossiae, Schroderae* and others commence to grow shortly after flowering, differences which must be studied, hence the treatment given to *C. labiata* must slightly differ from other species according to their varying periods of growth, flowering, etc., but in broad outlines, it is similar.

A charming unnamed hybrid of Laelio-Cattleya Hardyana with Laelio-Cattleya Brittania Majestic

Grown and photographed by Mr. T. C. Harveyson.

After flowering, *C. labiata* requires a rest—Nature's sleep. Given a house with correct conditions, one which maintains a minimum winter temperature of 55° Fahr. or even 50° for short periods, humidity not equal to that of the growing season, but sufficient for the plant to keep plump by absorption; without hot water pipes, or the plant far enough from such as to debar danger of loss of tissue to a perceptible extent by desiccation, *labiata* would require no attention till the first sign of root action, about March. Under ideal conditions water at the root would not be required.

Ideal conditions, however, are seldom obtainable, and occasional waterings are helpful to prevent undue shrivelling, but I would like to stress this point—too frequent waterings to a resting plant are far more harmful than to a growing plant, resulting in the death and decay of roots, particularly the few that remain on the back bulbs. If all are lost it means that the roots from the leading bulb and growth have to support the entire plant, and the back bulbs may exert a reflex action, and, instead of helping, draw from the lead.

In the stemmed species, C. *guttata* and its varieties, and C. *amethystoglossa,* require a more decided rest than do the more slender stemmed species, *velutina, bicolor,* etc. In all, when growth is first perceived, do not be in a hurry to water; let the growth reach a height of an inch, more in the larger growing species, before water is given; shorten the intervals between watering as the growths gain size and strength.

Growing conditions may be summarised as greatest shade while the growths are young, the temperature rising to the tropical or nearly so, during the day, and a night temperature of 65°, though a slightly lower temperature, (50°) or a little more, for an hour or two in early morning seems beneficial.

Towards autumn, shading should be decreased and more air admitted by day, with a decrease in the frequency of watering; the extra air and light will prepare the plants for the winter. In England this is a somewhat anxious time, as our climate is, to speak mildly, inconsistent. Pipe heat has to be used, and cannot always be advantageously controlled.

C. Eldorado, Dowiana, gigas, Lawrenceana and *superba* should have a winter temperature around 60°, and should seldom fall below 55°. Much depends on the condition of the plants and their state when winter arrives.

To-day, an endless number of hybrids find a place in Orchid collections. The parents of the earlier ones were simply two different species crossed together. The later hybrids are more complex, raised between hybrids, which themselves were of complex parentage. Many have traces in them of all the larger flowered species, often with the addition of Laelias.

The primary hybrids were fairly definite in their season of flowering, but with later crosses this is not always the case, and their growing season, too, is often different from that expected or hoped for.

Moreover, in nature, seedlings of the species and the few natural hybrids have to undergo the same conditions as the parent plants; under cultivation the artificially raised hybrids are given more heat, and what may be termed growing conditions, in the winter so that, to an extent, the young plants are always in growth. They flower about the 5th or 6th year, but the impetus given, perhaps, by the warmer conditions, or the conflicting influences of the parents, causes growths to be emitted more quickly than would be the case in nature. After two or three years of flowering this is not so perceptible, and then, if not earlier, an attempt should be made to rest the hybrid. The time and duration of the rest cannot be given, but the plant should be watched and slightly cooler and drier conditions, with more light, given, perhaps but for a few days, or longer if the state of the plant allows. Increased vigour and strength in the new growths will result, and in time there is the possibility of the plant losing the winter growth habit. The plant adapts itself more and more to the seasons.

In England, endeavour is made to avoid winter growths, but it is almost impossible to do so with many of the hybrids, and some species, particularly *gigas* and *aurea,* often produce them. A second growth may also occur under natural conditions, perhaps regularly in some localities, but I am unable to say so with authority. In nature there may be the added strain of seed pods which would tend to reduce growth activity in the quiet season.

Correctly speaking, plants should be repotted just as growth commences, the time being anticipated by a few days if possible. Late spring and early summer are favourable periods here, but much depends on the state of the particular plant. Potting after September should, unless vital, be deferred till spring, otherwise the plant has on top of a check, to contend with sunless weather and artificial heat—both detrimental to vigorous growth. If potting has to be done in the winter, or if winter growths develop, the particular plant or plants should be given a higher temperature and greater thought has to be given to watering.

The foregoing is a very brief outline, but will, I hope, give an idea of treatment here in England. The question now arises as to how such treatment may be applied under conditions in Australia.

(To be Concluded)

Correction

● In the article on "Flower Photography" in the last issue, the word "nine" in line 4 of column 2 on page 10 should read "more."

The Genus Sarcochilus, R.Br.

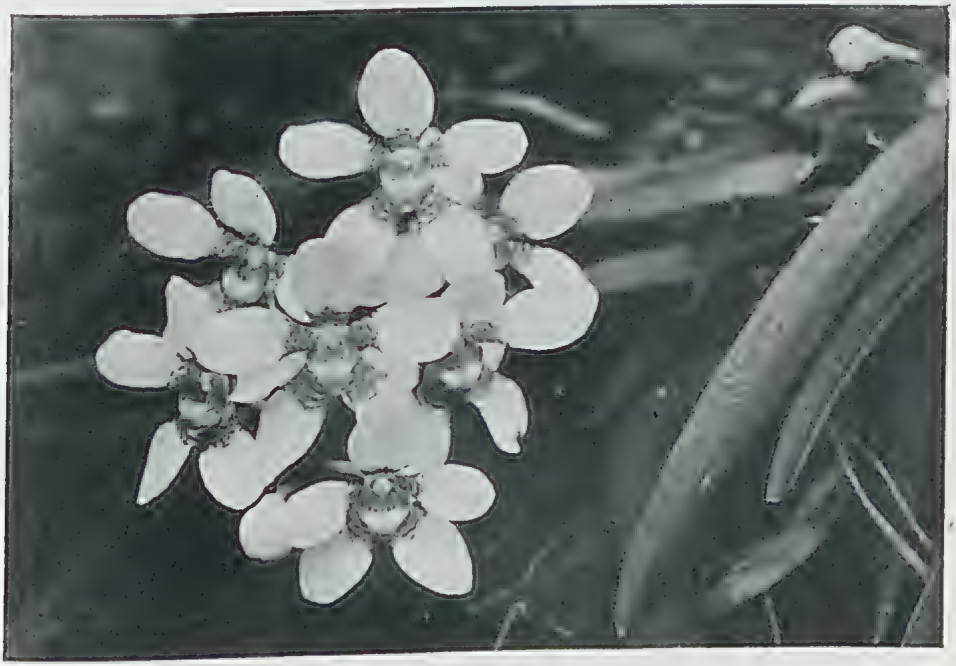
Dr. R. S. ROGERS, ***Adelaide, S.A.***

The Author, as is well known, is a world authority on Australian Orchids. The "Review" is indeed honoured to be able to publish this article from such an authoritative pen.

● This genus is a representative of the Sarcanthinae, a large and exceedingly difficult group of Orchids, regarding which most eminent botanists have expressed very divergent views. The difficulties are of a taxonomic character and are chiefly due to the fact, that although the genera constituting it present a striking similarity in habit, they also exhibit great dissimilarity in the form of the flowers and inflorescences. This greatly embarrasses the systematist in the natural separation of its genera, the boundaries of which are uncertain and ill defined.

The first great step in introducing some degree of order into the group must be attributed to the genius of Bentham, on whose arrangement most subsequent systems are more or less modelled.

Pfitzer, while adhering to Bentham's division in the main, still further improved on the prevailing conception of the constituent genera and their mutual relationships. In recent times there followed a number of important botanists, whose researches have considerably helped to clarify the problems involved. To none of these are Australian workers more deeply indebted than to Dr. J. J. Smith, whose profound studies in the Orchid flora of the Dutch possessions in Southern Asia and New Guinea have greatly influenced similar researches in our own country.



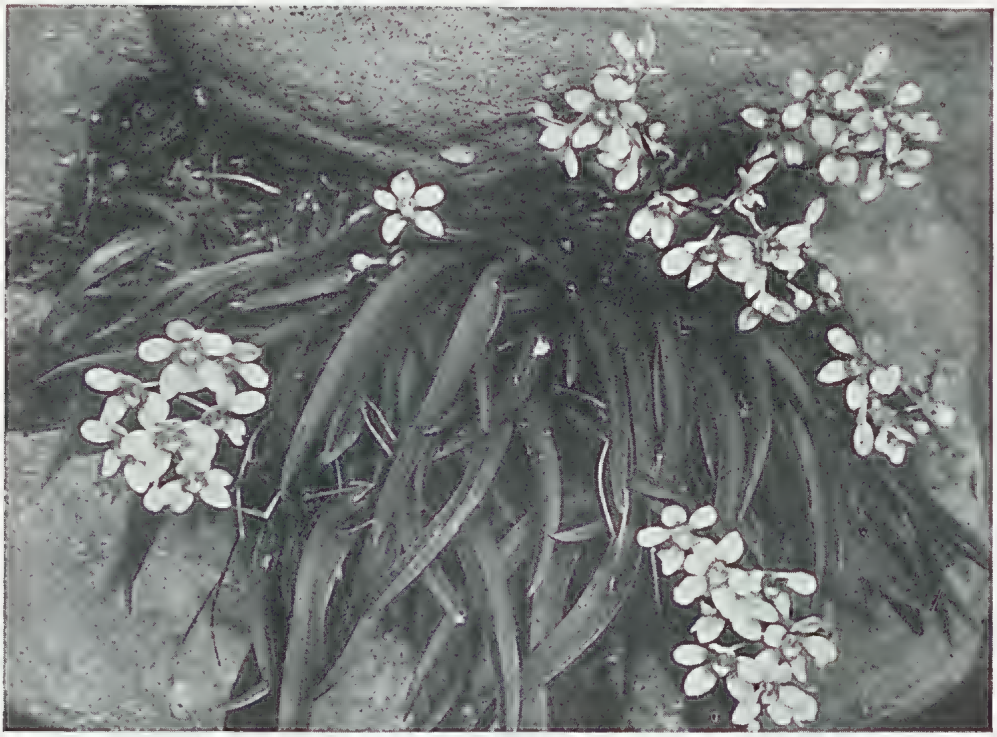
SARCOCHILUS FITZGERALDII

Natural size.

Plant grown and photographed by Mr. H. J. R. Overall.

For many years, Sarchochilus, R. Br. (1810) was regarded as a synonym of Thrixspermum, an older genus founded by Loureiro in 1790, but in the *Genera Plantarum* the position is reversed, the name of Loureiro's genus being regarded as inadmissible for constructional reasons, *"et a Botanicis fere omnibus neglectum."* Similarly, in the *Flora Australiensis*, Bentham again emphasizes his abhorrence of the name, stigmatising is as *barbarous* and refusing to accept it as a substitute for Sarchochilus.

Nevertheless, as the older name, it would today have priority under the International rules



SARCOCHILUS FITZGERALDII

The illustration indicates a successful method of cultivating this charming subject. It is grown under almost natural conditions amongst rocks in a cool, shady bushhouse.

Plant grown and photographed by Mr. H. J. K. Overall.

of Botanical Nomenclature. A still more important consideration, however, lies in the fact that the genus which it represents has been accepted by Ridley and other modern Orchidologists, such as Schlechter and J. J. Smith, as distinct from Sarcochilus, and therefore takes a valid place alongside the latter. At one time the name was employed by Reichenbach, fil, to the exclusion of "Sarcochilus," but was subsequently accepted by him as a synonym.

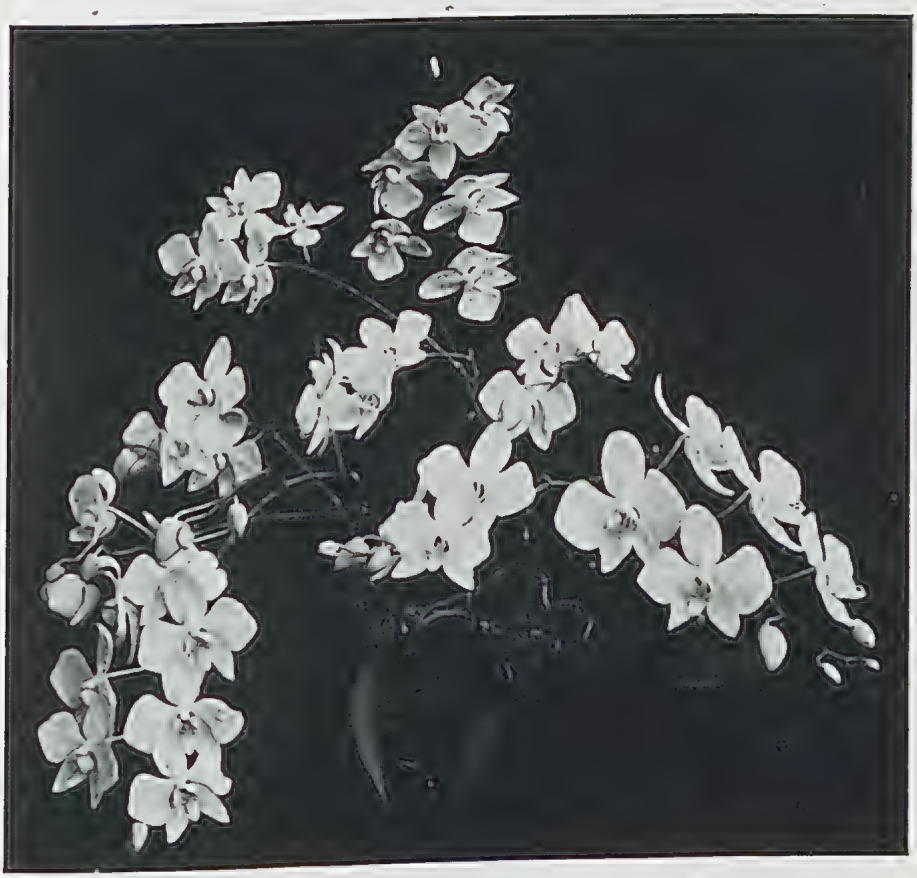
The chief distinctions between these two genera are to be found in the flowers. Sarcochilus has a labellum which is movably jointed to the column-post and in which there is no sac at the base, although in the middle or in front of it, there is an excavation or hollow protuberance opening by a narrow cleft above; whereas in Thrixspermum the labellum is immovably attached to the column-foot and has at the base a sac-like spur containing a definite callus (usually hairy). In the former genus the pollinia are two in number and sulcate; in the latter they are four, in two pairs, each pair consisting of large masses, very dissimilar in size.

In habit the genus Sarchochilus may be distinguished from Thrixpermum by the elongated inflorescence of the former, on which all the flowers of a raceme open on the same day, or else begin to bloom suddenly in series on a gradually lengthening inflorescence. The plants are either short-stemmed or stemless, though an elongation of the stem may occur in species where the inflorescence is single-flowered.

Such distinctions may seem comparatively trivial. Nevertheless they materially assist in the elimination of important taxonomic difficulties, which occur in the separation of members of the great group to which these two genera belong.

Thrixpermum has not yet been reported from Australia, but as several species have been described from New Guinea, it is not improbable that it may occur in the northern parts of the Commonwealth. Several authentic species of Sarcochilus have been described by Smith and Schlechter from the adjacent Dutch and Mandated territories.

Sarchochilus is undoubtedly a very considerable genus. It is difficult to estimate the actual numbers of species which it comprises, as so many of them have been united with Thrixspermum or erroneously placed under other genera. I find, however, that without making allowance for differences in taxonomic views, the *Index Kewensis* has reported 190 species to the close of the year 1930. This greatly exceeds the estimate of modern authors, even if the Kew record is reduced by 50 per cent.



PHALAENOPSIS ROSENSTROMII

A well flowered plant of this species. A native of Northern Australia, this is our only representative of the genus.

Plant grown and photographed by Mr. T. C. Harveyson.

The range of the genus is also very extensive. It is distributed from India along the southern coast of Asia and adjacent islands, then northwards in the Pacific to Japan. It occurs in New Guinea and has been reported as far easterly as New Caledonia and Fiji. It is well represented in Australia and extends as far south as New Zealand and the Chatham Islands.

Brown reported only one species (S. falcatus) from Australia, and on this, presumably, he founded his genus. To-day our census stands at 17 (perhaps 18) generally accepted species, and the genus is represented in every eastern State, including Tasmania, although it has not yet been reported from any other part of the continent. There would appear, however, no obvious reason why it should not reach us from the coastline north-west of the Gulf of Carpentaria, a part of the Commonwealth which has still been very imperfectly investigated.

None of the Australian species can be regarded as conspicuous, although several of them are very attractive and all are botanically interesting. As the most outstanding member on the list, I think we should undoubtedly place first *S. Fitzgeraldii*, F.v.M., the subject of Mr. Overall's beautiful photograph. This plant may be readily distinguished from its close relative, *S. Hartmannii*, F.v.M., by its pendulous habit and more slender peduncles. It is, indeed, altogether a more graceful species. His choice is evidently endorsed by its very considerable number of growers, not only in the Commonwealth, but also abroad.

With their white perianths and daintily dotted centres and yellow pouches, the flowers are undeniably beautiful, but no illustration, however faithful and effective, can do justice to this species in its natural setting. Elsewhere,* one reared in such surroundings, has in a series of vivid word pictures, conveyed a most realistic impression of its massive effects in the shady fastnesses of her home gullies, where it grows in great prodigality amidst ferns, mosses and other epiphytes, festooning the rocks with its drooping racemes and flowers in countless numbers.

I have not seen this species in cultivation in my own State of South Australia, but more than twenty years ago, I was surprised to receive a couple of very fine racemes of S. *Hartmannii* from Henley Beach, about five miles from Adelaide, where it was blooming in captivity freely without care or attention.

References to my Herbarium, the Valhalla of deceased Orchids revealed its folder lying intimately beneath that of its near (sic) relative as the systematist had ordained it. Even in the desiccated corpse a coarse similarity was apparent and the lack of grace was obvious. The comparison was that between the homely draught and the finely bred race-horse. The delicacy of design in the one was absent in the other. Stable companions no more! One could hardly conceive that S. *Fitzgeraldii* would bloom under the same crude conditions as its plebian kinsman.

Few of the other species of the genus seem to have attracted the attention of European growers. Amongst those which would appear worthy of a trial one might suggest S. *divitiflorus,* with its curious, elongated floral segments; S. *Olivaceus,* for its graceful floriferous racemes, and S. *falcatus,* the pioneer of the genus in Australia.

Some years ago I was gratified to note that Sir Jeremiah Colman had displayed his usual wide catholic sympathy in Orchidology by including in his magnificent collection at Gatton Park, a representative of one of our minutely flowered Sarchochili, S. *Ceciliae.* This generous interest in the purely scientific side of the subject would be a valuable help to Australian students of botany if it were known that a considerable part of our Orchid flora, especially from Northern Australia, has been very inadequately studied. The botanist but rarely has the opportunity to make his observations upon living, or even moist material. He generally receives it in the dried state and very frequently in a condition unsuitable for critical examination. This is very unfortunate in plants bearing minute flowers, which even in the living state are often difficult to investigate. It is only necessary to draw attention to such genera as Oberonia, Microstylis, Chiloschista, Eria, Hetteria, Taeniophyllum, Zeuxine, many small forms of Bulbophyllum, Phreatia, Cleisostoma and others, in order to emphasize this point.

If such Orchids could be cultivated under artificial conditions and fresh, moist or dried material distributed to accredited workers, it will be readily understood how greatly this would facilitate their investigations.

The Orchid House and Cultural Conditions

(Continued from page 6)

As the warm and steamy air will always rise, Orchids will thrive better if suspended about 18 inches from the roof; there is not so much danger of being pestered with slugs and other vermin as when the plant receptacles are resting on the staging; although I have had the experience of slugs crawling down the wire holding the baskets or pots and so ruining the young growth. The Orchid plants may be sprayed every morning in the summer months with a fine mist spray. During dull or rainy weather it may not be necesary to do this daily, as one does not want to be too indulgent with the water, and provided the compost during the growing period is kept moist and other conditions suitable, vigorous growth is certain. The floor of the house may be covered with coke breeze, as it will retain moisture quite well, or, if you feel extravagant a concrete floor is, of course, much cleaner.

I find it a good idea to always have a thermometer hanging in the glass house, although in its absence you may have less cause for anxiety. During the summer months, with the house suitably shaded, we usually will have little to worry about; as even with the temperature over 90° little if any harm will result, provided the compost is not permitted to remain dry for any length of time and the direct rays of the sun are excluded.

(To be continued).

(*Hilda Curtis in Vict. Nat. xlviii, 1932, p. 175.)

Orchids in Japan and the Philippines

Dr. CUTHBERT HALL, *Woolwich, N.S.W.*

●During a recent trip to the Far East (or should an Australian not say the Far North?) I found much of interest in Orchid matters. Taking first Manila in the Philippines, the heat, both times the ship called there, was dry rather than humid as one would naturally expect in an island climate. Two miles out from the city is the suburb, Singalong, where there is a large nursery carried on by a Japanese, Mr. S. Miyasaki, who has a large collection of Philippine, as well as imported Orchids, for sale. A great many of these are grown out of doors with very little shade from trees and have their roots simply wrapped in Sphagnum moss and are hung on stumps or trellises or pieces of wood. Others were in pots in wire netted enclosures with a scanty shading of twigs and branches above. Many Vandas and Dendrobiums were in perforated pots filled 2-3rds with crocks and topped with a little Sphagnum or a mixture of Osmunda and Sphagnum. Many of the taller Vandas, such as Miss Joaquim, were growing in the open ground in leaf mould with a little waste Sphagnum and Osmunda intermixed. Dendrobium superbum was there in quantity and was flowering freely. Mr. Miyasaki, who spoke English well and was full of information about Orchids, said that the plants were sprayed with water from the hose once daily except in the rainy season. His one glass house had a latticed roof and was open otherwise to the rain and was surrounded by

BRASSO-CATTLEYA PAULINE

This Choice hybrid has attractive, delicate, pale mauve sepals and petals with darker mauve lip, beautifully lined with orange. A feature of the flower is the heavily fringed labellum, edged with white.

Grown by Mr. S. C. James. Photo by Mr. E. A. Hamilton.

a small moat filled with water. This moat was six inches wide and three deep and green water-weed was grown in it for sale. On Mr. Miyasaki's recommendation, I brought back what he considered the cream of his Philippine Orchids, viz., *Aerides Lawrenceae, Cypripediums Argus* and *Haynaldianum, Dendrobiums Sanderae, var. parvifolium* and *Taurinum, Phalaenopsis Aphrodite, grandiflora* and *Schilleriana, Spathoglottis Parsonae, Trichoglottis brachiata, Vandas Miss Joaquim, Luzonica* and *Sanderiana.* This list is given as a guide to anyone who may be interested and they will find the prices reasonable. An effort was made to locate another Orchid dealer at Singalong, a Phillipino, E. Ermitano, without success.

CYMBIDIUM PAUWELSII
A magnicent specimen of this well-known hybrid. The plant carried 107 blooms.
Grown by Mr. S. C. James. Photo by Mr. E. A. Hamilton.

In Hong Kong, Canton and Shanghai, no information was obtainable about anyone who grew or dealt in Orchids.

Walking along Tor Road, Kobe, Japan, I happened on a nursery with several glass houses and quite a large collection of Orchids with some of the finest and largest hybrid Cattleya blooms I have ever seen. These glass houses were heated by pipes mostly on the earthen floor and the entrances from the street had an open door.

At the International Exhibition in Nagoya, covering 132 acres, there were two large flower pavilions, really heated glass houses, and among other fine things was a good display of cacti and Orchids, mostly *Dendrobiums*, which were very well grown. *Dendrobium superbum* was especially good, with luxuriant shoots and large glossy leaves, and was thriving best when grown in hollowed out tree fern trunks in a medium of Osmunda topped by Sphagnum.

The most fascinating spot in Japan aesthetically and architecturally is Miyanoshita on the way to Fujiyama. One can spend hours admiring its beauties both indoor and outdoor. I was particularly interested in the four or five glass-houses at the magnificent hotel there. Here was a fair number of Orchids which were doing very well but were not growing in the usual potting material. On inquiry, it transpired that they were potted in the waste of the rape after the oil has been extracted from it. One passes thousands of acres of this rape in driving along and the huge sheets of yellow bloom are as much of a feature of the landscape in the spring as the cherry and peach blossom. After the oil has been expressed the waste is sold as a cheap fertiliser and was used by this thrifty gardener for growing his Orchids as a substitute for Osmunda. As cabbages and cauliflowers belong also to the brassica family, as does the rape, perhaps some enthusiast may be tempted to try his luck by growing a hardy Orchid such as a Dendrobium in this medium.

The best collection of Orchids met with in Japan was at the Yokohama Nursery Company's garden. This was most artistically laid out with a fascinating array of azaleas and wisteria in pots in full bloom set amongst old stone lanterns, interspersed with maples decked in their tender red foliage and cacti and dwarf pines of every shape and form. There was, too, a large range of glass houses with chrysanthemums forced to bloom in the spring, anthuriums and Orchids. The latter, however, struck one as being overheated and too moist, being deluged with water daily. The gem of the collection was *Dendrobium Bloucaltii*, a hybrid raised in Japan, with growth after the style of *D. thrysiflorum* and with a similar flower spike but the colour of the flowers is mauve, intensifying on the stems to a deep rich violet, giving a most striking effect.

The Orchid Society of New South Wales

L. F. HAWLEY, *Lindfield, N.S.W.*

● Three years in the history of the Orchid Society of New South Wales have now passed, and during that time much has been accomplished in furthering the aims and objects of the Society, both at home and abroad. The membership of the Society has grown to close upon one hundred and fifty, and it is in a sound position financially.

BRASSO-CATTLEYA CLIFTONVILLE

An attractive hybrid of B. C. Cliftonii with C. Titus

Plant grown and photographed by Mr. T. C. Harveyson.

Of outstanding importance was the creation of the Australian Orchid Review. Making its initial appearance in January, 1936, the "Review" was very favourably received, and the fact that it now has regular subscribers in almost every country of the world is gratifying and indicates widespread interest in our own native Orchids, our conditions, our methods and research. Letters received by the Hon. Editor encourage the belief that the "Review" has already gone a long way towards fulfilling the purposes for which it was founded.

The Queensland Orchid Society and also the Newcastle Orchid Circle have both adopted the "Review" as the official publication of their respective Societies, and a cordial invitation is extended to the Victorian Society to do likewise. The Queensland Society has very generously arranged to contribute substantially to the cost of publication, and this practical expression of support, coming at a time when it was most needed, proved our Orchid Brethren in the Northern State to be true friends indeed.

Towards the end of 1935, the Orchid growers of New South Wales had the privilege of a visit from Mr. E. W. Cooper, of the well-known firm of Sanders. Mr. Cooper is one of England's expert growers and became associated with the Orchid Society of New South Wales for almost two months as an Honorary Member.

Before leaving Sydney, Mr. Cooper stated that the possibilities and capabilities of Australia had both surprised and pleased him. In his opinion, he said, Orchids would one day be grown here better, perhaps, than in any other part of the world. Our temperate climate and golden sunshine provided just the conditions necessary for successful Orchid culture, and whereas Englishmen and growers on the Continent had to carry their Orchids through a succession of dull days, we had, even in winter, warm sunshine and an abundance of light. He concluded by saying that growers in England had to work for their pleasure, whereas our growers needed merely to play with the plants.

In February last, Mr. W. Schmidt, of Turramurra, a Member of the Society, kindly donated two volumes of "Fitzgerald's Australian Orchids," and provided the cost of having these volumes suitably bound. The Society deeply appreciates the generosity of Mr. Schmidt in making available these early, and now out of print, records. The volumes have been placed in the Society's library for permanent references.

On the 26th August, 1936, the Society held its annual flower show at Vere-Matthews' Cafe, King Street, Sydney. The gathering comprised both amateur and professional growers, all Members of the Society, who had brought for display, to give pleasure to their friends and fellow-Members, as well as large numbers of the public, some of the wonders of the Orchid world. The show was an unprecedented success, over four hundred persons attending. The following comment subsequently appeared in the columns of the "Sydney Morning Herald": "So many members and friends attended the gathering that it was not possible to do any other business than talk and admire the winsome beauty of the Cattleyas, Cymbidiums, Cypripediums and Dendrobiums, perfect, almost priceless blossoms, every one of which was rich in colour, enchanting in form and adorable. Indeed it would have been foolish to waste time and opportunity in ordinary talk when one's eyes and heart were so busily engaged in an endeavour to film the treasured blooms so splendidly and generously displayed. The Society is working on the right lines. To realise that, one had only to see the exhibits made by the President of the Orchid Society, Judge Markell, Mrs. E. M. Mitchell, Mr. W. Rothwell, Mr. L. Newman, Messrs. Smart Bros., Mr. C. T. Gosper, and Mr. S. C. James and many others—all of whom risked their plants to make a worth-while exhibit."

Two visits were made by Officers of the Society to the Newcastle Orchid Circle during June and July this year. Members of the Circle met the Sydney parties according to pre-arranged plans and very entertaining and instructive days were spent in examining the various collections.

With this number The Australian Orchid Review celebrates its seventh quarterly issue, and the Society commences its fourth year of life. It is anticipated that considerable advancement will be made in the next twelve months, especially in Sydney, with regard to the hybridisation and culture of Orchids from seed. Exploratory research and experiment has already been carried out by some of the Members and the coming year promises a definite improvement in technique and, it is hoped, results. This branch is instructive and interesting to the keen student of nature, and will doubtless attract many adherents.

The monthly meetings of the Society have been consistently well attended throughout the year, and a number of very fine displays of blooms has been held. In this regard, the July meeting was outstanding. Addresses have been given and papers read by various of the Members, but, as previously, the most popular portion of the meetings has been the informal conversations which take place both before and after the formal business.

The annual flower display will again be held this year at Vere-Matthews' Cafe. Having benefited by last year's experience, more adequate accommodation will be provided for the hundreds of exhibits to be staged and for the many people who will doubtless view them. There is little doubt that this exhibition will far out-rival any previous display of Orchids in Australia.

We feel that our Society has made very definite progress since its inception. The popularity of Orchid growing has increased many fold and we believe that this increase is due in no small measure to the Members of the Society gradually educating that vast host of garden-lovers in the knowledge that Orchids can be easily grown and are not the fragile, delicate plants that popular fiction once held them to be.

Do Orchids Think?

● This is not a serious question, but we have had reported to us a case which might quite reasonably lead one to believe they do. A Cymbidium, growing in a wire-netting covered bush house had sent its flower spike just to the level of the netting and then remained stationary for some three weeks. The grower, fearful of the spike growing higher and breaking, placed a prop under the netting and raised it some four inches, whereupon the plant extended its spike till it was again touching the wire, but no further. It is again stationary. This is surely close to thought!

Orchids in Sumatra

An account of a trip to the Netherland East Indies

His Honour, Judge H. F. MARKELL, K.C., B.A., L.L.B.
Warrawee, N.S.W.
President of the Orchid Society of New South Wales

A GROUP OF CHOICE CYPRIPEDIUMS

Left to right: 2 blooms of Insigne, var. Sanderae; 2 blooms of Insigne, var. Royalty; Queen of the Belgians (spotted dorsal); 3 blooms of Juliet (at back); maudiae, var. Westonbirt (centre foreground); 3 blooms of Insigne, var. The Queen (at back); 2 blooms of Insigne, var. Royalty and Triumphans at extreme right.

Plants grown by Mr. L. H. Newman. Photo by Mr. E. A. Hamilton.

● I propose giving a short account of a trip which I recently made to Java and Sumatra, for the purpose of conveying to my readers, an impression of the particular interest which exists in those countries so far as Orchids are concerned. I will briefly outline the trip as a whole so that those who may be fortunate enough to contemplate a like trip may have information which will assist them.

I left Sydney upon the "Nieu Holland" on 21st December last, and called en route at Brisbane, Macassar, Javanese ports, and finally Singapore, arriving at the latter place on January 10th.

The Celebes (in which the port of Macassar is situated) would, I think, prove a very interesting place to anyone interested in orchidaceous plants. During my trip, I gathered information with regard to various lesser known islands, and if a person had the time at his disposal, the Celebes, the Moluccas, and the islands of Bali, Lonbok, Soembawa and Flores would be well worth a visit. One can take a boat from Sydney to Macassar and there embark on a local K.P.M. Steamer which visits the various islands, the whole of the trip occupying some couple of months. I am given to understand that all these places abound in Orchids of various descriptions, and as they are more or less off the beaten track, I am sure that they would prove an Orchid hunter's paradise. There are good roads now throughout the Celebes, and on the smaller islands one can journey about from place to place; and the accommodation, though not luxurious, is quite good. From what I have heard, I feel sure that such a trip would be well worth while.

Passing from Macassar, we next stopped at Soeroebaya, Samarang and Batavia respectively, and whilst in the latter place I took occasion to visit the gardens at Buitenzorg. Though in Java during the early part of 1936, I was not able to spend any time in these beautiful gardens, so on this occasion, as I had a day to spare, I made up my mind to inspect them thoroughly. Buitenzorg is about 30 miles from Batavia, and is reached by excellent roads after a run of about 1½ hours. The gardens are very beautiful, containing all conceivable varieties of tropical trees and a great number of orchids from different parts of the world. In particular, one notices *Grammatophyllums* growing to a height of 50 or 60 feet upon the main trees lining the central avenue. The collection in the glass or shelter houses was very interesting, mainly comprising *Dendrobiums* of different kinds. I spent an hour or more examining various Orchids which were growing in the open on Frangipanni trees. There were many Orchids of different kinds growing exceedingly well under these conditions, mainly *Dendrobiums, Erias, Bulbopyhyllums* and *Vandas.* I found this inspection exceedingly interesting, because I was able to recognise a number of plants of which I did not know the names. In all, I spent some three or four hours in the gardens, and anyone who has the opportunity, should certainly go and see them.

The following day we left Batavia for Singapore, and thence on to Belawan Deli in Sumatra, arriving at the latter port on January 12th. We drove to Medan, capital of the East Coast, and after lunch proceeded to Brastagi, which is about 60 miles distant. I had ample opportunity to study the flora, etc. on this journey, because after proceeding some 20 odd miles, the car broke down and we were held up for three or four hours, not arriving at our destination until well after 9 o'clock in the evening. There were plenty of mosquitoes (not malaria ones I am glad to say), and we certainly had quite an interesting time watching the myriads of glow worms and fireflies. This impromptu halt was rather annoying at the time, but at this date it seems an amusing interlude.

We found Brastagi a most delightful place. It is situated at an elevation of nearly 5,000 feet above sea level, amongst volcanoes, some of which rise to a height of 10,000 feet. These can be climbed, but I did not feel sufficiently energetic to try this, although I am told that at the higher elevations there are many *Cypripediums*—in fact, I recently met a gentleman who was there for a month or two after me, and he found *C. Curtisi* growing literally in thousands at an elevation of some 6,000 feet. I did not have very much opportunity of studying Orchids at Brastagi, because as it was the rainy season it was wet during our stay of two days.

(*To be Continued*)

Arachnanthe Lowii

● The attention of readers is called to the photograph of the interior of one of Judge Markell's glass houses which appears on page 5 of this issue, and to the plant of this species shown near the centre foreground.

Often erroneously called *Vanda Lowii,* this plant is perhaps the most remarkable of all Orchids. Attaining a height of up to twelve feet, and carrying long, broad foliage, it is of striking appearance. The flower spike appears, as with Vandas, from the axils of the leaves and reaches twelve feet in length. One would imagine that with spikes of that length, the plant would be very difficult to manage, but Judge Markell has often exhibited them at meetings of the New South Wales Society, bringing them all the way from Warrawee. The spike is extremely flexible and can readily be wound round and round the plant. The flowers are about three inches across and equally spaced along the spike, with the exception of the top ones. The colour is bright yellow, blotched with rich red. The paler yellow lip is small and marked with purple. An extraordinary feature of *Arachnanthe Lowii* is the striking difference, both in colour and shape, between the pair of flowers nearest the stem of the plant and the others. This basal pair are much paler yellow, spotted with crimson, and borne at greater intervals along the spike.

Judge Markell grows his specimens in suspended baskets amongst his Vandas. They receive precisely the same treatment and are growing well. They flower regularly every year—and the Judge is hopeful, one day, of attaining the English record of twenty-five spikes from the one plant. What a picture they must have made!

Cypripedium Charlesworthii

T. NELSON, *Mosman, N.S.W.*

● There seems to be a great diversity of opinion as to the correct potting compost for this beautiful and colourful species.

About four specimens have been exhibited, to the writer's knowledge, at recent monthly meetings of the N.S.W. Orchid Society. The first specimen shown was potted in the usual fibre and moss compost, and although the grower had obtained quite good results, it was evident, and he himself agreed, that there was still room for improvement in the cultivation of his specimen. The next plant of *Charlesworthii* was exhibited by Judge Markell. This plant was a particularly fine and vigorous specimen. It was growing in a seven-inch pot and had seven flowers at the time exhibited. The plant did not fill the pot, and repotting would not, apparently, be necessary for several years.

The potting compost comprised pieces of brick with mortar adhering to them. Over this was a top-dressing of moss. The writer has also used this compost with considerable success.

Another outstanding specimen of *C. Charlesworthii* was exhibited by Mr. Smart, and this time the compost was fibre and moss, plus a little leaf mould.

There was little to choose between these two plants, but the Judge had been growing his plant in his brick and mortar compost for a considerable time, which is a very necessary test with any new method.

Personally, I think the brick and mortar compost is the safest, if not quite the best. As we well know, *C. Charlesworthii* has a tendency to lose its roots in a fibre and moss compost, unless exceptional care is taken with the watering. With the brick and mortar compost, the plant can be watered freely without disastrous results to the roots, and it is also most probable that the lime content contained in the mortar contributes towards the successful cultivation of this Orchid, as it grows naturally in limestone country.

CYPRIPEDIUM CHARLESWORTHII

The exquisite pink-dorsalled "Slipper" which forms the subject of the article on this page.

Plant grown and photographed by Mr. T. C. Harveyson

A short description of *Charlesworthii's* habit of growth in its native habitat, may help interested culturalists of this charming variety, to a greater measure of success.

Mr. R. Moore was the first to discover the species in the Shan States (Burma). It grew on limestone hills at an elevation of 5,000 feet. Most of the plants grew on the limestone rocks, and the roots were sheltered in crevices in the rocks.

Thus it may easily be seen why the plant flourishes in a brick and mortar compost.

It may be of interest to note that *C. Charlesworthii* was first flowered in England in 1903 by Messrs. Charlesworth and Shuttleworth & Co., and it created a great sensation.

Vandas

Owing to pressure of space, the continuation of Mr. Beard's article has been held over to next issue.

Cool House Culture

T. H. JAMES, *Longueville, N.S.W.*

● My ideas regarding cool house Orchid culture about Sydney and over a large portion of New South Wales received excellent confirmation during a recent visit which I made to Newcastle in company with out President and another Member. There I saw Orchids, Dendrobiums and Cypripediums particularly, growing more luxuriantly than I would ever have thought possible, even with heat, and these results were achieved without artificial heat. Much as I would like to, I will not enlarge on my visit in view of the article which appears on page 25 of this issue.

Newcastle is less than 100 miles north of Sydney, but that distance would not appreciably vary the temperatures. One grower stated that during the present winter his thermometer has frequently been in the lower forties.

In my own house the temperature this winter has, on the whole, been higher than last winter, although on several occasions at the end of July the thermometer touched 40. Generally, however, the temperature has ranged between 48 and 52.

Nothing appears to have suffered except a small plant of *Peristeria elata,* which lost its foliage and one bulb. I will try it again before discarding it. The remainder, including Cattleyas, have not been affected in any way. The Cattleyas look particularly well.

About two years ago I obtained a few Odontoglossums and Odontiodas from England. The plants were small and the root systems had perished on the way out. They were repotted, when the new growth had started, in fibre, moss and some sharp sand. The first year's growth was smaller than the original, but the growth last completed was in every case larger, and one plant has produced a fine spike of 12 flowers of good size and substance. They have all started into new growth and now promise to go on improving. During the recent very wet weather I placed them under cover, but they are now out again in the open in a position which is generally very damp all the year round and they get a little sunlight filtering through the leaves of a tree. The pots are placed in a box and, during the growing period, embedded in gravel or moss to maintain moisture and coolness. These types are well worth growing. They will give spikes of flower not quite so long as many of the latter-day Cymbidiums, but they take up only a fraction of the room required by the Cymbidiums.

Den. densiflorum and *D. thyrsiflorum*—with me—do not appreciate dry conditions. I allowed them to get rather dry this winter, with the result that the bulbs shrivelled rather badly, which, probably, will affect their growth this coming season. I have applied water since noting the shrivelling, and, although the bulbs are now plumping up, I am afraid the damage has been done. On the other hand, *Den. chrysotoxum,* one plant in a pot and another on a raft, received very dry treatment all the year, and the growths are considerably larger than those from which they sprung, and they are now plump and healthy.

By the time this article is published, most of the Orchids in heated houses will either have started or will be just about to start their new growth. Cool house plants, however, are generally somewhat later in starting. A close watch will be necessary to detect the new root action in order that any plants needing repotting shall receive that attention before the roots get too long to handle without damage. Where repotting is unnecessary I always make a point of extracting every possible piece of dead moss and replacing it with live moss, and, from what I saw in Newcastle, only the green tips should be used for that purpose.

Dendrobium phalaenopsis

● We have received a letter from Mr. W. J. Enright, of West Maitland, who offers an interesting suggestion for the cultivation of this species. Having met with little success in an unheated glass house, he was advised by Mr. W. F. Tierney, of Cairns, to try growing it on citrus trees. Three plants were placed on a Cumquat tree at the end of last spring, and before the end of the summer two had made new growth and had rooted on it. During June, one produced three spikes of bloom, but a second, although flourishing, has not flowered. The third, which was in poor condition when planted out, did not survive. Three frosts occurred before the plant flowered, but even the buds were not damaged.

Two other plants of *D. phalaenopsis* have been planted on a broom (Genista) and are doing well, and Mr. Enright proposes making further experiments on a Frangipanni.

Orchids and the Man

Part I.—"BRAINS IN THE CULTURE"

J. MURRAY COX, *Brisbane, Q.*

This is the first portion of an interesting series of talks delivered by Mr. Murray Cox to the Queensland Orchid Society. In this issue we publish a section of Part I., entitled "Brains in the Culture," and this will be followed in due course by the other parts entitled "Debits & Credits," and "Romance."

● The constantly increasing complexity of modern times demands an ever heavier toll from man as he crosses the Bridge of Life, and Life's paymaster is the MIND — that largely unexplored territory that links the Physical man with the Psychical. During the last century and a half, philosophers have, to a certain extent, made voyages of discovery into this Terra Incognita, and as a result of their efforts we are beginning to know a little of the functions and the working of human understanding. One of the great truths which have been postulated is that the human mind continually strives to preserve an equilibrium; that is, that where an unusual pressure has been brought to bear upon a human mind, it immediately seeks to find relief by attracting a compensatory pressure from another source, thus restoring a balance. When such compensatory relief cannot be found we have nervous breakdowns, mental derangements, and sometimes sheer madness.

CYPRIPEDIUM SULLIVAN

A choice hybrid of striking appearance

Grown by Mr. W. Palmer. Photo by Mr. H. J. R. Overall.

All humanity is subject to the curse of Adam: "By the sweat of thy brow shalt thou eat bread," and although in the chaotic conditions of these times many are denied the privilege of causing their brows to perspire, the old law still holds. As the years relentlessly are born, grow old and die, the innumerable activities of mankind multiply and extend and interweave into a pattern of crazy uniformity — and in these activities every man plays his little part — so important in his own eyes, so insignificant when seen against the perspective of the universe, and yet an essential thread in the woof and warp that makes up the tapestry of humanity.

The weaver knows that if too great a strain is placed upon the thread it must break, so the loom is fitted with shuttles that the strain upon the thread may be relieved as often as may be without doing damage to the pattern.

In the same way it is good for the souls and minds of men that they seek relaxation from time to time from the strain and wear and tear of the business of living, and above all ways, that relief can best be given by some hobby or other. Hobbies are of many kinds, but they can be divided generally into two classes, which I shall call respectively Creative and Passive.

Creative hobbies are those which tend to the act of production by the hobbyist—such as Woodworking, Sketching, Painting, Horticulture in its various forms, and so on. Passive hobbies are those whose main interest lies in the acquisition or collection of various articles, such as Ceramics, Pictures, Stamps, First Editions, and so forth. Both classes quite satisfactorily serve their purpose as mental tonics, but the creative type is much more soul-satisfying in these modern days. Our particular form is, of course, the culture of Orchids, which, happily, partakes of the nature of both classes.

Most persons who contemplate the commencing of a new form of activity are subject to fears of their ability to meet and overcome the difficulties (real or fancied) associated with that activity. How often we are asked, "Isn't it terribly hard to grow Orchids?" To which I usually reply, "All the best things seem terribly hard until you start—then you find that they are really simpler than the worst things."

A great French savant, Descartes, summed up his philosophy in these words, "Cogita ergo sum," which, being interpreted, is, "I think—therefore I exist." By this the Philosopher meant that it is only by the exercise of the Divinely given power of reasoning that Man can maintain himself. In the same way, when the eminent artist, John Constable, the beauty of whose colour tones was proverbial in the middle of the nineteenth century, was asked by a gushing woman, "Oh, Mr. Constable, how *do* you mix your colours?" he replied, laconically and with truth, "With brains, Madam!"

Similarly, if we are to grow Orchids successfully, one of the principal ingredients of our cultural methods must be "brains"—and it is because brains have to be used in all creative hobbies that they are so wonderfully good as mental tonics. It would be foolish to spend a lot of money acquiring a collection of plants if we just placed them down in a bush house irrespective of species, genera or variety, and watered them in strict routine—the result would be in most cases a series of funerals—with possibly one or two outstanding successes. What every grower of Orchids must do if he wishes to achieve success, is to study, without ceasing, each and every plant. In their early stages this attention must be constant and close, but after they have become settled down, a more general, but not less efficient, supervision will be sufficient. The following are some of the points to which attention should be given in this supervision of your plants:—

1. Light.—All Orchids require some light, but the quantity necessary varies very considerably, not merely between one genus and another (that is, between, say, Cattleyas and Dendrobiums), but between the species of the various genera themselves. It would be quite fatal, for instance, to argue that because *Dendrobium superbiens* loves the full, rich sunlight, therefore *Dendrobium Devonianum* should grow right out in the open as well—just because it belongs to the genus Dendrobium, too. It is an unfortunate fact that we have very little particular knowledge regarding the conditions under which most of our exotic Orchids grow naturally. We may know that a certain plant comes from India or from South America, but we are apt to forget that in each of these countries the climate ranges from the torrid heat of the tropics to the eternal cold of the higher altitudes, and that varieties of most of the Orchid genera are found through the whole range of climatic conditions. Here, then, is where we can commence using brains with our culture.

Let us start off by placing our new plant in a cool shaded part of our Orchid house, and watch it carefully. If, after a reasonable time has elapsed, it is not making an attempt to grow, shift it into just a little bit lighter position. Probably in a little while we shall see a definite commencement of new growth. If this progresses satisfactorily, we can say that we appear to have the right lighting conditions—if not, try again, and so on. This sounds as if it might be a bit of a bore, but actually it becomes just as fascinating as a detective thriller—with yourself in the role of the clever sleuth endeavouring to save the beautiful heroine from a slow and painful death at the hands of the gang of conspirators plotting against her well-being. My own experience has taught me that many Orchids which we consider should be shaded from the sun's rays actually do better when exposed to them, provided that discretion (or brains) is used in gradually introducing them to a greater degree of sunlight.

2. Temperature.—The earth's temperature is largely affected by the sun, and this temperature has a large bearing on the earth's living forms—in fact, at least one philosophical school claims that the sun is the giver of all life. Naturally, the degree of warmth or coolth necessary for an Orchid's welfare is closely allied

(*Continued on page* 24)

Disas

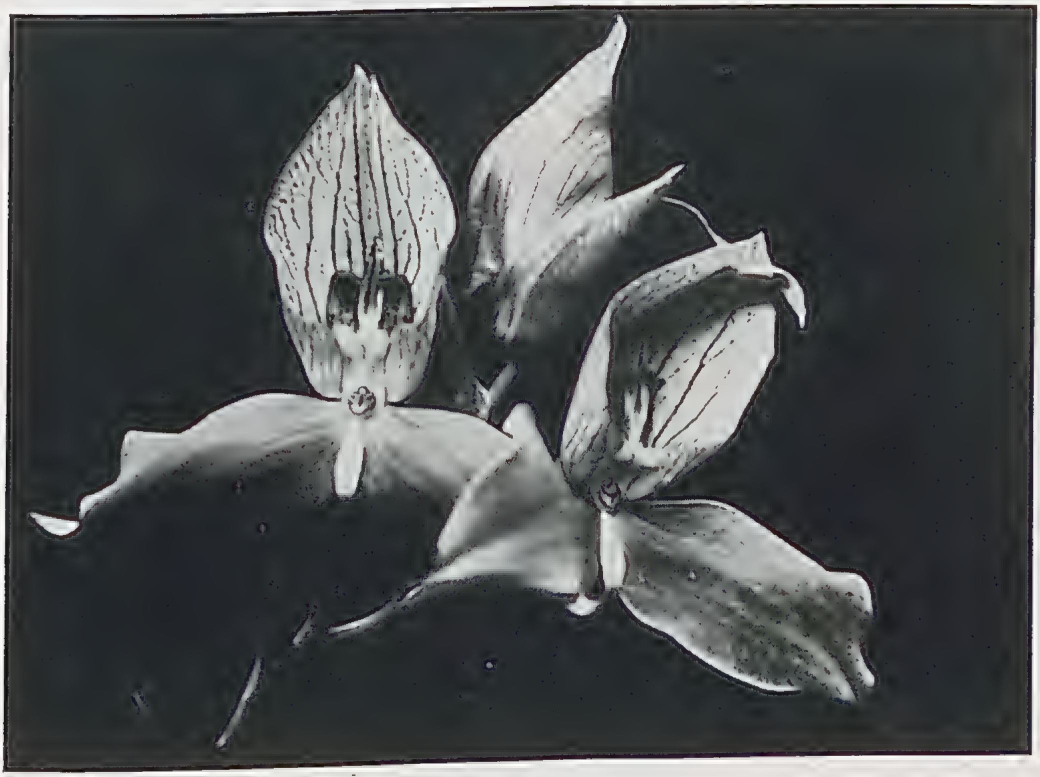
H. J. R. OVERALL, *Manly, N.S.W.*

● The Genus Disa comprises over one hundred species of terrestrial Orchids, and all are natives of Africa. They are mostly found in the south temperate region.

With two or three exceptions, there appears to have been some difficulty in the cultivation of the members of this Genus, and as a result they have not been favoured by Orchid growers generally.

Unlike most of the more brilliantly coloured Orchids, where the lip or labellum is the more developed or attractive feature of the flower, in Disas, the lip and petals are quite small, the sepals being much larger and more richly coloured.

Some of the species form tuberous rootstocks, and the beautiful *Disa grandiflora*, pictured here, is of this type. Growing on Table Mountain at Capetown, this species is particularly attractive, having sepals of orange-cerise, veined with deep crimson. Its petals and lip are orange. It grows under conditions somewhat approximating those of the Odontoglossum, requiring a cool temperature but with no frost, ample light and yet shaded from the direct rays of the sun, ample fresh air, constant moisture and perfect drainage. A mixture of Todea or Osmunda fibre, fibrous peat, and fresh Sphagnum moss to which has been added a liberal proportion of coarse sand or finely ground crocks, makes a good compost for the cultivation of *Disa grandiflora*, as well as for the other species of the tuberous rooted or stoloniferous type.



DISA GRANDIFLORA

Photo by H. J. R. Overall.

The accompanying illustration shows a flowering head of a plant grown under the conditions I have mentioned, in Tasmania. Here it grew without artificial heat and seemed to thrive, sending up flower stems two feet high.

My attempts to grow Disas in Sydney, however, have proved unsuccessful, but I consider this unfortunate result to be due to the probability of the tuberous rootstock having become too dry in course of transit to this country.

Several hybrids have been raised in England, the hybridists using the three species, *grandi-*

(*Continued on page 29*)

Orchids and the Man

(*Continued from page* 22)

to the problem of light. It would be unreasonable to think that an Orchid that flourished in sunlight required cool treatment, or that one which liked shade required great heat, but it is impossible to lay down, with authority, any strict rule applicable to any particular Orchid. What appears to be ideal treatment in one man's circumstances seems wanting in another's. In the case of species, reasonable guides can be found by studying the various text-books on Orchids. It is where hybrids of many generations are concerned that the difficulty is greatest. Here it is desirable that the parentage of the plant be traced back to its original species, and if, on studying the pedigree, it is found that a great proportion of its forbears were plants which thrived in high temperatures, then warmth would seem to be desirable in its particular case. Then again, local climatic conditions have a great bearing on the subject. In Brisbane, and places similarly situated, the climate is particularly suitable for growing most varieties of Orchids without a heated house being an essential. During the coldest portion of our winter season, artificial heat is desirable for a short period, but it is by no means a "sine qua non." Where artificial heat is not available, the only effect in the majority of cases seems to be a slightly retarded resumption of growth, and it is quite possible that this increased period of hibernation or rest may be of actual benefit to the plant. Of course, there are certain plants which must have heat throughout the winter, and such plants should only be grown by those who can give them this luxury.

Vanda Sanderiana is typical of such, and I doubt very much whether anyone can grow and flower it in Brisbane without artificial heat. But Orchids as an order are of high adaptability, and it appears possible that after a long period of acclimatisation, even *Vanda Sanderiana* may at last take up the routine of its natural functions, and thrive and flower in an unheated glass house, or even an ordinary bush house—providing it can be kept alive under such conditions long enough for it to make up its mind that life is worthwhile after all.

3. Moisture.—From time to time an ill-informed journalist describes the epiphytical type of Orchid as a "parasite." Perhaps in the final analysis of things, all living organisms are "parasites," insofar as practically every living thing depends for its existence to a greater or lesser extent upon the functioning of its fellows; but in the generally accepted meaning of the word a parasite is a thing which derives its existence from the raiding of the life-blood of another being. Epiphytical Orchids are air-plants; that is, they derive their main nourishment from the atmosphere—from which, through the action of sunlight, rain and dew, they extract the elements that sustain them. Have you ever examined the roots of an Orchid in a dry state? They are like pieces of twine, and when touched give an unpleasant reaction to the fingers like the feeling given by a dry sponge. Spray them with water for a minute or so and you will be amazed at the way in which they spring into life again. The white dead threads are changed into full green living organs which you can almost see pumping the moisture up into the plant, and in certain Orchids you can trace quite clearly the gradual absorption of the fluid into the plant itself. It is obvious, then, that in the cultivation of Orchids moisture must play a big part. In deciding how much water is required, we must again set our brains to work. If we open our atlas at that interesting section which deals with such things as the currents of the oceans, the mineral and plant distribution, the comparative rivers and mountains of the earth's surface, and so forth, we may find a chart showing the incidence of the rainy seasons in different parts of the world, and we will be struck by the fact that in almost every corner of the earth there is normally a very wet season, and a very dry season each year. From this it is easy to deduce that the plants of every climate have their annual cycle during which they pass from a dry period through gradually increasing moisture to a wet or rainy period, thence through a gradually lessening moisture to a dry period.

If this is the case in their native conditions, then surely we must endeavour to provide the same cycle in our Orchid houses, subject, however, to the modifications rendered necessary by the difference between natural conditions of living and those in artificial cultivation. The effect of moisture when applied to a plant is to inspire and promote growth—and continuous watering will provide continuous growth, for the time being, at least. Now, if we revert to our annual weather cycle again, we note that normally every year, around about a certain time, the average rainfall lessens until a dry season comes round. This results in the Orchid in its natural state having a period of cessation from growth—or in plain words, a rest.

Part I. will be be concluded in the next issue.

A Visit to the Newcastle Growers

RONALD M. STEWART, *Neutral Bay, N.S.W.*

● Five members of the Orchid Society of New South Wales—Messrs. E. A. Hamilton, F. A. Weinthal, S. C. James, L. F. Hawley and the writer—recently paid an intensely interesting and instructive visit to Newcastle at the invitation of the members of the Orchid Circle of that city.

The Sunday chosen for the trip was, perhaps, the worst, so far as the weather was concerned, that any of the party had experienced. Torrential rain fell continuously. Wind at gale force brought down large trees across Pacific Highway and at times visibility was so poor that the car had to proceed at a snail's pace.

However, our various inspections in the Coal City so interested us that the weather was forgotten and we had a thoroughly enjoyable day.

Six collections were visited and were of such quality that readers in Sydney and elsewhere will be interested to hear of the various methods adopted. Two collections will be described in this issue, and these descriptions will be followed by the others in our succeeding numbers.

We were greeted on arrival by the Newcastle Orchid Circle in full force and it hastened to apologise in advance for what we were about to see, and to stress the fact that we were there to criticise and to teach. We left them having praised and learnt.

We do not know how our readers will accept our belief in vastly different climatic conditions between Sydney and Newcastle—some seventy miles apart—but this is the only explanation we can give (without giving any due credit to the growers whatever) for some magnificent growing feats without artificial heat.

CYMBIDIUM HERA x GATTONENSE

A lovely hybrid of good form. The sepals and petals are deep pink, the lip being of biscuit colour with dark red markings.

Plant grown and photographed by Mr. E. A. Hamilton.

Our first inspection was of the collection of Mr. J. J. Genders, of Stockton. Mrs. Genders had thoughtfully provided for us a tasty and very welcome morning tea—and we hope she understood our great appreciation of her kindness, especially after the bleak trip we had had.

Our tea was taken in a pleasant bush house containing a very large, elevated fish pond with plate glass sides. There were numerous smaller ponds as well, all constructed in artistic cement work; and ferns and a few cool growing Orchids were doing splendidly. A large aviary of multi-coloured love-birds also attracted us. We noted that almost all the Newcastle growers whose collections we visited, shared their interests between Orchids, fish and lovebirds.

Our first inspection was of the cool house. This is built close to the ground, the passageway between the stages being excavated to a depth of about two feet, the roof being low, also.

This house contained mostly Vandaceous

plants, and here we received our first shock—Vandas *Luzonica, teres, suavis, Dearii, coerulea, tricolor, Amesiana, Boxalli, superba, insignis, Agnes Joaquim* and others were all growing to perfection without heat. And this was by no means all. Saccolabiums in variety, *Aerides crassifolium, Renanthera alba,* Dendrobiums *Superbiens, Formosum giganteum* and *Dalhousieanum*—all looking the very picture of health.

Mr. Genders has a very fine collection of *Vanda coerulea* of many different shapes, sizes and shades. They root very freely for him and show no signs of that warty, stunted root action so common to this species grown in Sydney. The plants were flowering profusely. Several large specimens of Vandas *tricolor* and *suavis* were growing vigorously — and Mr. Genders' plants of these varieties have developed the happy habit of branching freely without loss of the centre growth. A recently imported batch of about thirty or more *Aerides crassifolium* were running riot with new roots.

This grower has all his vandaceous plants in large pots in almost pure living moss—which is procured locally. This local moss, however, contains quite a large percentage of dead leaves, twigs and other so-called rubbish. The drainage is charcoal, and when Mr. Genders knocked out an established plant, it was obvious that the mixture—and the drainage—were completely to its liking—roots all through the pot. The plants were all kept quite moist, notwithstanding the fact that the temperature sometimes drops below 40°. The Vandas were grown close to the clear glass—perhaps about a foot below it—and air was allowed to blow round them through the always open ventilators at the top of the walls, just below the slightly sloping roof. We learned that the roof is whitewashed in the summer, but in the cool weather it is quite clear. Mr. Genders has most certainly learned the secret of successful Vanda culture. But wait! Would you grow *Dendrobium superbiens* in a cool house? And could you produce growths eight feet long, all carrying many spikes? These plants receive the same liberal watering as the Vandas—and their growth shows their appreciation of this and the live moss potting mixture. These are not newly acquired, but well established plants and each year the growths leapt ahead of those of the previous year. And the same applies to Dendrobiums *Dalhousieanum*—huge plants—and *Formosum giganteum.*

Under the benches grew ferns in profusion, and a very attractive red and yellow flower of the Gloxinia family.

What is the secret of this success with Vandas and other, as we believed, warm growing Orchids, grown in a cool house? Is it the Newcastle climate—or the large pots, or the local moss or the ample water? It cannot be the conditions obtaining in that particular house, because we saw the same thing in other collections. We were—and are—certainly puzzled, and we congratulate Mr. Genders on his achievements.

The grower's second house is heated with a home-made heating system and contains Cattleyas, "Slippers," Phalaenopsis, etc., and is filled to capacity. Some of the plants show signs of thrip, but in general the house has a very healthy look about it. We were particularly interested in a large batch of young Phalaenopsis and in this grower's method of propagating *Dendrobium nobile.* He cuts off the old pseudo bulbs and half buries them in moss, inducing several growths from the unflowered nodes. He is able to bring these shoots to the flowering stage in three years. There were a number of fine plants of *Cypripedium callosum,* but we think Mr. Genders would obtain better success with his "Slippers" if he used for them the small house he now uses as a hospital. We were impressed by its apparent suitability for the cultivation of Cypripediums.

We were disappointed at the absence of any Cymbidiums at all, but Mr. Genders and others assured us that they do not do well out of doors in Newcastle—which presented yet another puzzle.

Before leaving Mr. Genders' home, we must mention his patent bell. This is operated at meal times by a string from the house—quite a distance away—and visiting members of the Circle, unlike most Orchid growers, have sufficient consideration for their women-folk to regard that bell as "Time, gentlemen, please," and depart at once. We offer these remarks for the benefit of our Sydney Orchid-widows.

Leaving Stockton, we proceeded to Hamilton, to the home of Mr. E. McElwaine.

We are unanimous in saying that Mr. McElwaine's house contains probably the healthiest and best grown collection of Orchids we have ever seen—and this was another cool house!

Whereas Mr. Genders' cool house is very low, Mr. McElwaine's is distinctly high—the glass walls being about ten feet—surmounted by a gable roof.

This grower treats his plants in a way radically opposed to the methods of most of us. Whether his methods form that exception which is always necessary to prove the rule, we do not know, but Mr. McElwaine has been remarkably successful, and is in the happy position of being able to defy anybody to find a single thing the matter with any of his plants—and he has by no means confined himself to those varieties usually looked upon as cool-growers.

In the first place, the house is built the opposite way from what is usually regarded as correct. It runs east and west, the eastern end being blocked from receiving the morning sun by a garage. Mr. McElwaine told us that it actually received very little sun at all during the winter months. Benches are constructed round the walls and in the centre is erected a wooden staging. Coarse beach pebbles under benches and staging give the humidity-forming element—and very attractive they look, too.

Our attention was at first taken by the remarkably healthy appearance of the Cypripediums—especially some fine, large plants of *C. Parishii*—and we were surprised to learn that their compost contained liberal rations of heavy soil and cow manure!

We turned several plants out of their pots and noted the amazing root action. Mr. McElwaine recommends the following mixture for "Slippers"—and we assure readers of the outstanding success he has achieved with it: One-third chocolate loam, one-third Todea fibre, cut up, and one-third rotted cow manure. Only one piece of crock over the hole in the bottom of the pot is used for drainage and the receptacle is filled to within two inches or so of the top with the mixture, this being topped off with growing local moss with its quota of leaves and sticks. There can be no doubt of the liking the plants have for this treatment—their firm, shiny, erect foliage and vigorous root action speak for themselves. Mr. McElwaine believes in feeding his "Slippers"—by giving them a compost in which they can find food. He is most careful in his choice of soils, and for that at present being used, had to go as far afield as Maitland. In company with every other plant in the house, the Cypripediums are drenched with water—even in winter. Watering causes little worry and takes little time—a good volume applied by a hose from the door is all that Mr. McElwaine finds necessary.

This successful grower has a fine collection of Dendrobes. His plants of *chrysotoxum*, *Jamesianum* and *Formosum gigantum* are huge specimens, the last mentioned having growths 2ft. 6in. in length. *Fimbriatum occulatum, Dalhousieanum, Pierardii, moschatum, thyrsiflorum, aureum* and *Wardianum giganteum* were also represented by perfectly growing specimens, many making buds for what should be a fine display in the spring. The plant of *D. Wardianum* needs special mention. The growths were fully three feet long and fifteen nodes on each growth were budding—almost back to the roots, as the nodes were widely spaced. All these Dendrobes showed marked improvement from their native growth.

Dendrobium phalaenopsis and *D. superbiens* were represented by remarkably fine plants. The growths were long and very thick and making profuse bud. With these plants, too, the cultivated growths were far in advance of those made under natural conditions.

And Phalaenopsis! *Schilleriana* was carrying several spikes and *amabilis* was also growing perfectly. There was none of the "just alive" look about these typically warm-growing plants—the leaves were large, of good colour, very firm and absolutely unspotted, while the root action was rampant. Have you ever placed a slip of "Pussy" willow in a glass bottle filled with water . . . ?

The Cattleyas were growing well and many were making bud, and though they were not quite up to the standard of the other plants, they were nevertheless a further proof of what can be done in an unheated house.

Other plants noted were a large pot of *Vanda Boxalli* growing alongside an equally fine specimen of *Coelogyne cristata*, and several Cymbidiums near the door were in spike.

Every plant in this house was in perfect health and no trace of any disease or insect pest could be found—and we admit to having made a close search—just to find something that was not quite perfection!

We have given much thought to this perfection of Mr. McElwaine's plants, and particularly to the growth of those usually regarded as definitely needing heat. There is ample light from almost clear glass, and the atmosphere is buoyant. Perhaps these factors help, but we feel that much credit is due to the grower's own efforts. Though Mr. McElwaine's methods are far from orthodox, there can be no doubt of the success he has achieved, and he should continue them unchanged. We congratulate Mr. McElwaine upon his amazing results and the general health and vigour of his entire collection.

The Orchid Circle of Newcastle

J. J. GENDERS, *Stockton, Newcastle, N.S.W.*

● The Orchid Circle of Newcastle came into official existence about twelve months ago. Prior to that the Orchid growers in the district had been in the habit of meeting one another casually at infrequent intervals, but with the customary good fellowship of those who grow these plants, these meetings became more regular, and after some time the habit developed of holding unofficial meetings monthly at one another's homes, when matters of common interest were discussed, glass houses and plants inspected, and refreshments, provided by the growers' womenfolk, enjoyed. It eventually became apparent that it would be in the interests of all concerned if a society were formed, and thus the "Circle" was born.

Its unwritten and flexible constitution is Utopian. There are seven members and, apart from myself as Honorary Secretary, there are no officers. Neither have we any subscriptions nor any rules, and consequently our meetings are always a success.

It is our custom to meet together on the afternoon of the first Sunday of every month at the home of each member of our "Circle" in rotation. Accordingly, with our present membership, each member receives a visit every eight months, and by this means it is possible for each of us to receive the friendly advice and assistance of the members collectively. This appears to us to be an admirable way of conducting an Orchid "Circle," for we are enabled to see each other's plants in their normal surroundings, and on succeeding visits we are able to note whether our collective advice or any of it has been given effect to and whether that grower's plants have progressed and responded or not.

Some weeks ago, we had two welcome visits from Officials of the Orchid Society of N.S.W., and reference to the various collections visited by them will be made in the "Review" from time to time. Consequently I need not enter into such descriptions here.

The growing of Orchids in Newcastle has definitely come to stay and is increasing in popularity to a very noticeable extent. It is abundantly apparent that garden lovers generally are interesting themselves more and more in this fascinating branch of horticulture, and it is earnestly felt that ere long Newcastle will be second only to Sydney amongst the cities of Australia in the study and development of the Orchid cult.

Cymbidium Devonianum

● This little native of Assam, though very easily grown, fails to share the popularity of the other members of its genus, and the reasons are not hard to find. Flowering, as it does, towards the end of the Cymbidium season, its small flowers come somewhat as an anti-climax, and, in addition, many growers have had plants for years without being successful in flowering them.

Nevertheless, it is an attractive little plant, and quite deserving of a place in every collection, having flowers about an inch and a half across, closely set upon pendant racemes. The dark olive green sepals and petals are spotted with crimson, and it has a very pretty dark purple-red lip—quite a departure from usual Cymbidium colouring. The foliage, too, is distinct, being very broad. The pseudo bulbs are small.

It has occurred to the writer that the reason for the apparent failure of these plants to flower is that the spikes grow downward into the mixture. Several were observed this year doing so and were guided over the edge of the pot with celluloid labels placed under them to direct them upwards. The spike appears early, but takes longer than usual to develop, and certainly has this downward-growing habit very badly.

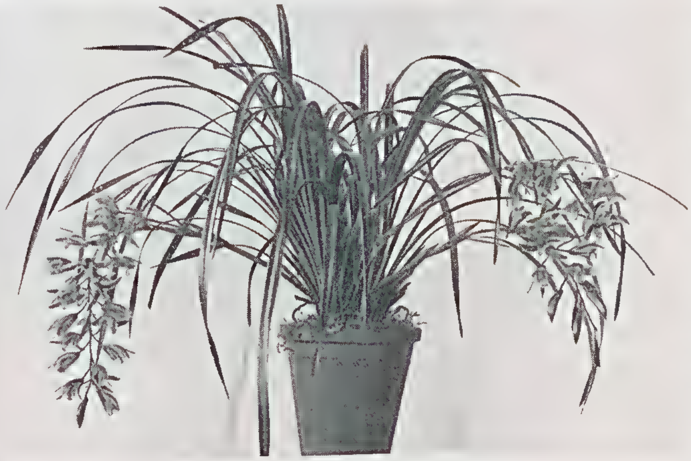
Why not then try growing them in wire baskets in the same way as Stanhopeas are grown? Amongst the Cymbidiums, *Devonianum* looks insignificant, but suspended in the house in a wire basket, lined with moss, and with its flower spikes hanging down and the whole surmounted by the attractive foliage, the result should be very pleasing indeed, and will doubtless bring this little outcast into greater favour.

A photograph of *Cymbidium Devonianum* appeared in Number 1 Volume 1 of the "Review" on Page 23.

Cymbidium Gammieanum

W. WORTH, *Willoughby, N.S.W.*

● A native of Sikkim, India, and an interesting natural hybrid, it is thought, between *Cymbidium longifolium* and *Cyperorchis elegans, Cymbidium Gammieanum* is extremely hardy and quick to establish itself in its new environment. Having pseudo bulbs of fair size, it is very tenacious of life and invariably arrives in this country, after its four or five weeks' journey, in an excellent condition. The fresh, alive appearance of its foliage after importation is in happy contrast to the many other Cymbidiums that arrive de-foliaged or quite dead, or nearly so.



CYMBIDIUM GAMMIEANUM
Grown and photographed by Mr. W. Worth.

It may be potted upon arrival in the usual Cymbidium mixture and seldom looks back, if grown out-of-doors under an apricot or other deciduous tree that protects it from the fierce summer sun and permits winter sunshine.

Each of my plants, of which I have about a dozen, imported at different periods and from different localities, all flower freely and are decidedly uniform in every way — colouration, shape and size. This is rather surprising, since my plants came from many sources, and its repute as a natural hybrid would lead one to expect considerable variations.

The flower spike is first erect and then drooping, and carries upwards of thirty blooms of a delightful pale golden colour, the lip being marked and lined with pink. The sepals and petals are a little narrow and the flowers, on first opening, are somewhat disappointing, but as the great clusters expand fully, their colour intensifies delightfully and provides a splendid sight. They last on the plant for about two months, and the plant is one of the first to flower. Though very susceptible to scale, *Cymbidium Gammieanum* is a very graceful and useful plant indeed.

Notice to Contributors

● Readers are reminded that contributions of both articles and photographs are welcome, and for the December issue should be in the hands of the Hon. Acting Editor, Mr. R. M. Stewart, 197 Elizabeth Street, Sydney, N.S.W., before the end of October. Much of interest to other growers occurs with us all, and readers are invited to write about their experiences. Contributors who may feel diffident at appearing in print may send rough notes, which will be written up by our Editorial staff. Growers who have blooms of an unusual nature suitable for reproduction are asked to 'phone Mr. Stewart at M3722, or in the evenings at X3255, and he will endeavour to make arrangements to have them photographed if considered suitable.

Disas

(*Continued from page* 23)

flora, racemosa and *tripetaloides,* as the parents.

These hybrids are said to be quite easy of cultivation when compared with the species.

Other members of the Disa family are of a bulbous nature, and the blue-flowered *Disa gramanifolia,* which grows in heathy country under warmer conditions, is typical of this section. Actually it grows under almost identical conditions to our native Boronia.

Whilst my endeavours of recent years to obtain a few specimen tubers or bulbs for experiment have been without avail, other readers may have been more successful. I, and, I am sure, very many growers here, will be interested to hear from them if this is the case.

The Collecting of Orchids in South America

Being an extract from the MISSOURI BOTANICAL GARDEN BULLETIN, *of September, 1923*

● The Orchid collection of the Missouri Botanical Garden has always been a notable one, and since the general public is apt to judge such an exhibition from the standpoint of colour and quantity of bloom rather than the rarity of the plants, it is desirable from time to time to augment the number of more showy Orchids, especially cattleyas. During the war, however, practically all the collectors of Orchids, particularly in South America, went out of business, and it is no longer possible to buy these native plants through local agents. Consequently, the only way in which they can be obtained is to send a representative direct to the country where these particular Orchids are grown, in the hope that by a fortunate combination of circumstances, he may secure enough of these plants to make the trip worth while.

Early collectors of Orchids in Columbia, such as Schlim, Blunt, Linden, the Klablock brothers, Chesterton, Lehmann, and Kalbrayer, had no difficulty because of the abundance of accessible plants. During these easy-collecting days the commercial cattleya was found growing upon houses and in forests close at hand. In Yacopi, in the Departmento Cundinamarca, the villagers even presented a collector with forty cases of plants. A present-day collector, however, must rely upon the natives exclusively, making his headquarters at the nearest village and waiting with all the patience at his command for the return of the natives with the coveted Orchids. During this time he has abundant opportunity to become familiar with the native food, which consists of bananas, prepared in various fashions, the yuca (Manihot roots), sun-dried fish, and last but not least, the native meat, taking the usual chances with ptomaine poisoning and dysentery.

Boxes must also be prepared for the possible shipments. This usually involves cutting trees, from which boards are made by crude native methods. These packing crates are of standard size, 46 x 46 x 75 cm., and for ventilation spaces are left between the boards and occasionally bamboo strips are used on the ends. When the plants arrive they are cleaned, cutting away any surplus back pseudo bulbs or waste material, then dried thoroughly before packing. The plants are put into the cases as tightly as possible, no packing material being used, each box holding ten *arrobas*, or 250 pounds. This weight diminishes during transportation to this country (U.S.A.) to about six *arrobas* or 150 pounds.

The best time for collecting *Cattleya Trianae*, according to Cyril Allen of Bogota, is during the dry season (November to March). The flowering season, "*Varanillo*" ("little dry season"), which is from the end of July to September, is then over, and if collecting is done during this period it is possible to select the best types. Cattleyas do not grow in the hot country, but in the foothills of the Cordilleras, from 2,000 to 6,000 feet altitude, where the mean temperature is 65-67° F. Most cattleyas are entirely local in their distribution, certain species being confined to a small given region and disappearing completely when this area is passed. They inhabit the topmost branches of the Aquapa (Bombax), 150-200 feet in height, where there is plenty of sunlight. Even in the dry season they are subjected to heavy dews at night which more or less prevent shrivelling. *Cattleya Mendelii* has been found growing upon rocks too hot for the naked hand, suggesting that most cattleyas need abundant sunshine.

Cattleya Percivalliana grows much better upon rocks and cliffs overhanging streams than upon trees. Other cattleyas, such as *C. Trianae*, prefer the topmost branches of trees. They may be found in either the crotches or branches, upon the sides of the main trunk, or in many cases surrounding the limbs of the smaller branches where their roots tenaciously hold them fast against the strongest wind, often making it necessary for the natives to pry the plants loose, with attached bark, by means of their machetes. If there are many plants upon a tree, there is no hesitation about cutting the tree down. Plants are not so plentiful at the present time, however, and it is truly an Orchid hunt. Nothing but the trained eye of the native Indian can find the cattleyas in their concealed locations. According to authorities, there are now more commercial cattleyas in the United States and Europe than growing in their native environment in Colombia.

The appearance of the Orchids as collected is rather disappointing to the Orchid enthusiast who has been used to Orchids in the greenhouse. Masses of dried-up back pseudo bulbs, old flowering spikes, and dead leaves present anything but a pleasing appearance. The dark green colour to which we have become accustomed in Orchid houses is replaced by a foliage of yellowish green.

QUALITY'S HIGHEST STANDARD,

Steadfastly holding to our initial aim of creating good work alone, we have built a reputation in colour engraving and all branches of process work . . . none claim to make better . . . none actually are consistently as good.

PHOTO-ENGRAVING ART COMPANY LIMITED

HALF-TONE AND COLOUR PLATE SPECIALISTS

CENTRAL BUILDINGS, 89 WILLIAM STREET, SYDNEY
TELEPHONE F 1151 - 2 - 3

ORCHIDS

We hold an immense stock of FINE HEALTHY ORCHIDS
A Wonderful Selection of

HYBRID CATTLEYAS
LAELIO-CATTLEYAS
CYPRIPEDIUMS
ODONTOGLOSSUMS
MILTONIAS

Plants of flowering size. Over 35 years' experience in export packing to Australia
Prices very reasonable. Write for our CATALOGUE without obligation.

MANSELL & HATCHER
Limited
Dept AOR. RAWDON, LEEDS, England

ORCHIDS

Special Offer *All Post Free*

6 different species CYMBIDIUMS	24/-
6 different species CYPRIPEDIUMS	24/-
12 different species showy DENDROBIUMS	38/-
12 different showy species, selected from above kinds and others	28/-
CALADIUMS	
24 different fancy named varieties	24/-

NOTE.—These prices are in English currency.
ALL POST FREE

Over 24 years exporting experience at your service

ORCHID CULTURAL BOOKLET
PRICE 1/-

But free with all Orders

Wholesale and Retail Catalogues of Orchids, Caladiums and Seeds Free on Request.

The Chandra Nursery
P.O. Rhenock Sikkim 54
INDIA

Splendid stock of

CATTLEYA, CYMBIDIUM,
CYPRIPEDIUM, ODONTOGLOSSUM
and PHALÆNOPSIS hybrids.

Over 3 acres of newly-built houses devoted to Orchids

FLANDRIA
BRUGES (Belgium)

S A N D E R S
St. ALBANS

ORCHID GROWERS, HERTS., ENGLAND

OVER 50 YEARS' EXPERIENCE
AT YOUR SERVICE

TO SUIT ALL HOUSES **ORCHIDS** TO SUIT ALL CLIMES

WRITE FOR
Special Offers—Latest Price Lists
and
"Cultivation of Orchids"
An
illustrated and interesting Book free on application to Members of the Orchid Societies of New South Wales and Queensland.

●

SANDERS ORCHID GUIDE
A complete work on all best known species
1927 EDITION—POST FREE—21/-

ORCHIDS

Cymbidiums — Cattleyas — Dendrobiums — Cypripediums, &c.

You get Good Plants at Keen Prices from

Armstrong & Brown

Tunbridge Wells, England

◆

Write for Price Lists. All orders received shall have our very best attention in packing and selection of the plants.

ORCHIDS

Orchids of merit in great variety
Ranging from seedlings to specimens
Choice Exhibition or Commercial varieties
Hybrids from parents of distinction
Interesting Botanical Specimens
Delivered all over the world, by:

Stuart Low Co.

Nurseries: Jarvisbrook, Sussex.

Head Office: Bush Hill Park, Enfield, Middlesex, England

Catalogues on application. Inspection of our houses invited. Offer of collections.—small or large—prepared on request.

The Scarlet

DELPHINIUM

Nature's gift to Garden Lovers—the Flower of the Future

Tall growing, free flowering, well branched habit. True Scarlet in colour, hardy, easily grown, long lasting. Plant now.

4/- each. 6 for 21/-. Posted free

IFAFA LILIES

Hardy, free flowering in 5 distinct shades. White, Yellow, Red, Apricot and Pink. One of each, 6/-

Philip Montague

Bulb Specialist

Frankston, Victoria

WATER LILIES

Six distinct colours — flesh, rose, white, yellow, red, salmon, for 27/6, or 5/- each posted.

◆

J. OVERALL

Darwin Nurseries

Sulphur Creek

TASMANIA

ORCHIDS OF SIAM

Sent to all parts of the world in any quantity

Only strong and healthy plants supplied

Lists free on application

The Bangkrabue Nursery

24kh. Phaya Klahom's Lane
BANGKRABUE, BANGKOK, SIAM

Notice to Advertisers

All enquiries as to Advertising space in this "Review" should be addressed to the publishers:—

Shepherd & Newman, Pty Ltd.
YURONG STREET
SYDNEY, N.S.W.

INDIAN ORCHIDS

Fine collections of showy Orchids for £1, £2/10/-, and £5. Packing and Postage free to any address.

G. GHOSE & CO.

Exporters of Orchids, Liliums and Himalayan Flower Seeds.
TOWNEND, DARJEELING, INDIA

NATURAL HISTORY BOOKS

New and Second-hand, including a special purchase of 1600 from the Library of the late W. Howat Esq. Full list on request. Also FIELD NATURALISTS' REQUISITES, MICROSCOPES, Telescopes, Field Glasses, Survey Instruments, etc.

N. H. SEWARD PTY. LTD.
457c BOURKE ST., MELBOURNE

By Appointment to the Sikkim Durbar

Headquarters for everything in Indian Orchids, Bulbs, and Himalayan Flower Seeds

12 Cymbidiums, 50/-; 12 Cypripediums, 55/-; 12 Grand Dendrobiums, 36/-; 6 Vandas, 24/-; 25 Different Showy Orchids, 50/-; 100 Eucharis Lily Grandiflora, £6. Post Free. Cash, please.

Catalogue free.

Get your requirements from the officially recognised reliable Firm:—

L. B. PRADHAM & SONS
Post Pakyong, Sikkim, INDIA

FRED A. MASHMAN Ltd.

CROYDON ROAD, HURSTVILLE
At Kingsgrove Railway Station

FLOWER POT MANUFACTURERS
F.A.M. SPECIAL AERATED ORCHID POTS

CHEAP AND EFFECTIVE

'Phone LW3113

DENDROBIUM FALCOROSTRUM

Three Bushel Sack 15/-
Bushel and Half Case 7/6
(on Rail Dorrigo)

DAVID CLARK
Deer Vale, Dorrigo, N.S.W.

SIAMESE ORCHIDS

12 Cypripediums in 6 sorts for 40/-; 12 Grand Dendrobiums for 35/-; 20 different showy orchids for 40/-; 12 Vandas in 6 sorts for 35/-; 6 Anthurium andreanum in variety for 60/-.

CARRIAGE AND PACKING FREE

Good Discount to Wholesale Customers

PHRA MAHA VICHAI
822 Prajadhipok Road, Bangkok, Siam

If you are a flower lover, become a member of the Orchid Society of your own State; and join in appreciation of the climax of plants' evolution. Visitors welcomed at meetings.

●

The Orchid Society
of New South Wales

Meets every month on alternate last Tuesdays and Thursdays,
in Room 507, Phillip House, Phillip Street, Sydney
at 8 p.m.

The dates of the next meetings of the Society are as follows:—

SEPTEMBER: TUESDAY, 28th
OCTOBER: THURSDAY, 28th
NOVEMBER: TUESDAY, 30th
DECEMBER: TUESDAY, 21st

A hearty invitation is extended to all interested in Orchids to attend.

Communications regarding the Society should be addressed to:

T. H. JAMES,
67 Arabella Street, Longueville.
'Phone, B6351

●

Queensland Orchid Society

President:
MILES R. FOX
Queensland Fruitgrowers' Association
BRISBANE

Secretary:
T. C. HARVEYSON
G.P.O. Box 2002 X,
BRISBANE

Meeting Place:
MINIATURE RIFLE RANGE BUILDING,
Boundary Street,
BRISBANE

Meetings held on Second Friday of each month

Printed and Published in Australia by the Orchid Society of New South Wales
G. Hermon Slade, Hon. Editor.
Wholly set up and printed in Australia by Shepherd & Newman Pty Ltd., Yurong Street, Sydney.

TAYLOR'S

Our long experience in the culture of orchids is at your disposal, we cordially invite you to inspect our comprehensive stock of fine plants. We also give advice (free) on the construction or alteration of houses suitable for the cult. All postal enquiries receive our prompt attention. Fully illustrated catalogue on application, also contains growing instructions.

Special for this issue only:

CYPRIPEDIUM VILLOSUM - - - - 5/- each
CYPRIPEDIUM VILLOSUM, extra strong plants - 7/6 each

For reliable Orchids true to name, consult

TAYLOR'S ORCHIDS

5 ACACIA STREET, BELMORE
NEW SOUTH WALES

ORCHIDAL

A proven German Orchid Fertilizer which produces remarkable growth and magnificent dark, almost black-green, foliage.

PRICE: 6/- per ounce.
£4 per pound. Post free.

One ounce makes approximately 30 gallons fertilizer.

◆

Sole Agents:

W. Hermon Slade & Co., Ltd.,

Manufacturing Chemists,
ROSEBERY AVENUE,
ROSEBERY
***Postal Address:* BOX 1540 D.D., G.P.O., SYDNEY.**

V. 2, No. 4

196.7-2

Yam 50

GEO LYELL
GISBORNE

Australian
ORCHID REVIEW

Price 1/6

The Official Organ of
The Orchid Societies of New South Wales & Queensland

Officers of the Orchid Societies of New South Wales and Queensland

New South Wales

President:

His Honour Judge H. F. MARKELL, K.C., B.A., LL.B.
"Kooyong," Hastings Road, Warrawee

Vice-Presidents:

E. A. HAMILTON
16 Hercules Street, Chatswood

Rev. H. M. R. RUPP
The Rectory, Raymond Terrace

Hon. Secretary:

T. H. JAMES
Arabella Street, Longueville

Hon. Treasurer:

L. F. HAWLEY
121 Middle Harbour Road, Lindfield

Committee:

P. A. GILBERT
37 Colin St., Lakemba.

F. DOUGLAS
Taronga Park, Mosman

"Review" Sub-committee:

G. H. SLADE, B.Sc.
"Raiatea," Oyama Ave., Manly

H. J. R. OVERALL
530 Woods Street, Manly

R. M. STEWART
14 Bannerman St., Neutral Bay

Queensland

Patron:

Sir LESLIE ORME WILSON, P.C., G.S.I.E., G.C.I.E., C.M.G., D.S.O.

President:

MILES R. FOX
Cleveland

Vice-Presidents:

M. P. CAMPBELL
Ruth Street, Wilston

S. HARRIS
East Innisfail

Dr. D. A. HERBERT, B.Sc.
47 Main Street, Woollowin

P. A. LeFEUVRE
Wickham St., Ayr.

Lt.-Col. A. T. JACKSON
Roy St., Auchenflower

J. SKERMAN
Box 6, P.O., Maleny

Hon. Secretary:

T. C. HARVEYSON
P.O. Box 2002X, Brisbane

Hon. Treasurer:

J. R. TANNER
Phelan St., Clayfield

Hon. Technical Adviser:

C. T. WHITE
Botanic Gardens, Brisbane

Hon. Auditors:

J. MURRAY COX
Equitable Life Building, Queen Street, Brisbane

A. B. TANNER
Geelong Ave., Coorparoo

Committee:

L. F. HAYES
Primrose Terrace, Red Hill

A. P. BLAIR
Miskin St., Toowong

R. G. FERGUSON
14 Palmerston St., Annerley

A. W. HIGGINS
219 Gregory Terrace, City.

C. A. HILSDEN
Junction Rd., Clayfield

T. RICE
Prout Street, Camp Hill

W. McK. ROBERTSON
City Building, Edward Street, Brisbane

J. SMOLENSKI
Junior Terrace, Northgate

BUY YOUR
ORCHIDS NOW

Do not wait until too late in the Season

Special Xmas Gift offer to any of your friends

A Cymbidium, Cypripedium, Dendrobium and Vanda; nice growing, potted plant of each suitable for bushhouse. 17/6, freight extra.
Six Assorted Orchids, including Cypripediums, Dendrobiums, Cymbidiums and Vandas for 25/-
All plants sent out are correctly potted and ready to be placed in the bush or glasshouse. Freight extra.

A few of my special offers of plants available now: Dendrobiums, Aureum, Crassinode, Chrysotoxum, Dalhousianum, Infundibulum, Thrysiflorum, etc.; Cypripediums Charlesworthii, Parishii, Villosum, etc.

All at 2/6 and 4/- plant or clump

Also Vandas Coerulea; Tricolor at 3/6 and 5/- each

Please Note: We have no Agents and no outside Representatives

Inspection
Cordially
Invited

J. BISSET

'Phone:
Drummoyne
1124

48 WAREEMBA STREET, ABBOTSFORD, N.S.W.

Fine Books
ON
Botany
AND
Horticulture

WITH BEAUTIFUL COLOURED PLATES

Complete Catalogue
Sent Post Free on Request

Bernard Quaritch
Limited

11 Grafton St., New Bond St.,
London, W.1.
ENGLAND
Cablegrams: QUARITCH, LONDON

THE ORCHID REVIEW

Founded in 1893, by the late R. A. Rolfe, of Kew. The only Journal dealing exclusively with Orchid Lore, featuring articles on the History, Cultivation, Hybridization, and all matters of interest to the Connoisseur, Amateur, and Trader.

Exhibition Reports and Registration Records of new Hybrids accurately kept and published.

PRICE: 1s. 6d. Monthly. Postage free.

Back volumes and complete sets, bound or unbound, can be supplied from

THE ORCHID REVIEW LIMITED

5 Tavistock St., Covent Garden
LONDON, W.C.2

CYMBIDIUMS

Smart's Garden Service

for Cymbidium Species and Modern Hybrids

Our collection of Cymbidiums — both species and hybrids — is worthy of growers' attention. All mature, healthy, and vigorous specimens, our stock contains the very latest and best varieties procurable from the leading overseas growers, as well as the proved old favourites.

FOR SIZE AND QUALITY WE ARE UNEQUALLED

PRICES: From 25/- to £5

We also cater for every kind of garden shrub and plant.
Seedlings of Special Quality.

AZALEAS and HYDRANGEAS in great variety. Prices competitive.

Visitors always welcome. Stroll round our grounds and choose plants to your requirements. Situated on the left-hand side of Pacific Highway, between Gordon and Pymble.

Smart's Garden Service
819-857 PACIFIC HIGHWAY, GORDON, N.S.W.
'Phone JX3052

Stock Nursery: H. E. SMART, Sobraon Road, Eastwood. Phone: Epping 1439

BLACK & FLORY

LOUGH

ENGLAND

Cablegrams: "Orchids Slough"

◆

Cypripediums in modern hybrids as available

Cymbidiums—on first flowering, for shipping in April—
strong plants

Brassocattleyas and allied hybrid genera
Odontoglossum hybrids, Miltonias, Odontiodas, etc.

All by special offer at moderate prices, according to strength and quality.

AUSTRALIAN ORCHID REVIEW

Volume 2 **December, 1937** No. 4

●

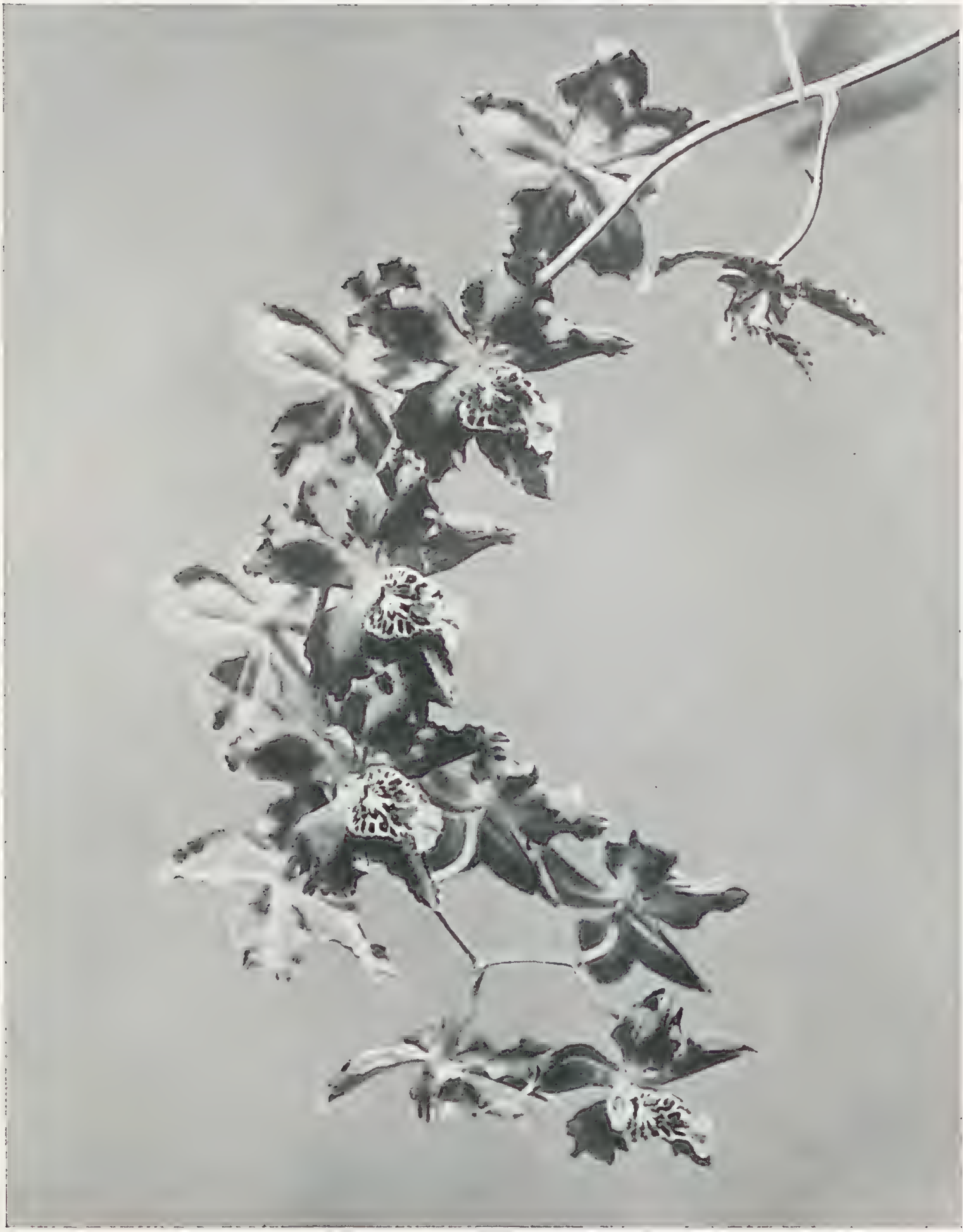
Contents

A Visit to the Newcastle Growers 9
Cattleyas 4
Census of North Queensland Orchids 28
Cool House Culture 5
Consolidated Index 17
Dendrobium Ellen 17
Dendrobium tetragonum 19
Editorial—A Plea to the Amateur Hybridizer 3
More about Dendrobium falcorostrum 11
Notes of an Amateur Orchid Hunter in Kenya 25
Notice to Contributors 26
Notice to Subscribers and Advertisers 30
Orchid Growing in the Desert 21
Orchids and the Man 15
Orchids in Sumatra 13
Protection for our Native Species 22
Some Notes on Nomenclature 27
The Orchid House and Cultural Conditions 26
Treatment of Newly Imported Dendrobiums 23
Tying of Orchids 6
Vandas 7
Wood Lice and Other Pests 29

INDEX TO ILLUSTRATIONS

An Attractive Group of Dendrobium Hybrids 23
Cattleya Frankensteiniana 4
Coelogyne cristata 5
Cymbidium Auriga x Pauwelsii 15
Cymbidium Erica Sander 12
Cypripedium Gertrude West 25
Dendrobium Ellen 17
Dendrobium falcorostrum 11
Dendrobium minax 13
Dendrobium tetragonum 19
Odontioda Lacerta 2
Phalaenopsis Schilleriana 9
Saccolabium giganteum 21
Vanda coerulea 7
Vanda tricolor 29

Subscription: 6/- per year, post free.



ODONTIODA LACERTA

A beautiful spray of this deep red hybrid, indicating sucessful treatment. The plant, with others, has been grown under outdoor conditions for some years at Longueville, N.S.W., by Mr. T. H. James

Australian Orchid Review

Editorial

A Plea to the Amateur Hybridizer

● Articles have appeared from time to time in these columns on the subject of hybridisation of Orchids, and it is noted with satisfaction that this aspect of our fascinating hobby is receiving increasing attention.

Until we in Australia do raise our own plants from seed, we must realise that notwithstanding our infinitely more congenial climatic conditions we lag far behind England in Orchid culture generally. Even at our Societies' meetings it is not practicable to make awards for plants exhibited for the reason that the wealthier of our Members would almost always have the more expensive and therefore the better plants, and this state of affairs will doubtless continue until we begin to obtain the fruits of our present and future activities in the field of hybridising. It is therefore most desirable that we proceed with as much speed as possible, for not only will our monthly meetings become much more interesting, but we will have plants of a quality which otherwise would not reach this country. In almost every pod, thoughtfully produced, there will be something of outstanding merit, and at present such plants are retained by the fortunate raiser overseas—the back cuts being sold at the prices which even the wealthiest of us in Australia will not pay, for the natural fear of loss in transit.

During the last two or three years many growers have set about the crossing of their Orchids with great enthusiasm, and this season has seen the sowing of many pods of seed—particularly of Cymbidiums. This enthusiasm is deserving of praise—these growers are amongst the pioneers in this country of a branch of Orchid culture which must inevitably become very prominent—but we fear there has been too much haphazard crossing. A grower finds he has two plants in bloom at the one time and promptly effects a cross without troubling to consider whether that particular cross is likely to produce any improvement on the parents. Whilst this may give him experience in raising plants from seed, it does not achieve very much otherwise. It is practically useless to cross two inferior blooms, and the result can only be disappointing and may have the effect of cooling the necessary enthusiasm of the grower.

Bear in mind, therefore, when making your crosses, that it is essential to have outstanding parent blooms if we are to raise in this country such plants as receive the Awards of Merit in England. Choose each of the parents for some particular quality—size, shape, colour, perfume or ease of culture—and then effect your cross, and by so doing you will have a far greater chance of producing plants of a quality so lacking in our collections at present.

Do not, then, merely cross two plants because they happen to be in flower in your house at the same time. Choose the parents with care and thought, carefully make notes of the characteristics of each which you hope to breed into the hybrid, and then patiently await results.

Another aspect of hybridization in Australia which should receive attention, is the crossing of some of the more showy of our own species. So far as we are aware, only one artificial cross of Orchids indiginous to New South Wales has yet been made—the result being *Dendrobium Ellen*—raised by Mr. Wilhelm Schmidt in 1914 and described in this issue. This is indeed a charming little plant which shows a marked improvement in every way on both the parents. All who have seen this plant in bloom when exhibited at meetings of the Orchid Society of New South Wales have envied the raiser his possession of it, and yet this is the first of many possible interesting crosses of our own species. So in casting round for something novel in the way of crosses amongst your Orchids, give consideration to some of our own natives. We feel sure the results will repay your time and trouble and you will know you are producing something new and distinct and are breaking almost virgin ground.

Cattleyas

E. COOPER, *St. Albans, England*

This is the third and concluding part of Mr. Cooper's article which commenced in our issue for June, 1937. Readers are again reminded that this article was written in England and that the seasons mentioned, except where otherwise stipulated, are those of England.

● The Sydney climate, as I experienced it, differs in summer from the English in its greater humidity and more consistent warmth; 80° Fahr. here is usually a dry heat, far more trying to Orchids than the same thermometer reading in Sydney. Here, airing is somewhat of a puzzle. Our glass houses have to maintain or retain a congenial atmosphere. If too much air admitted or wrongly given, draughts may be caused or moisture allowed to escape, and the interior atmosphere will become as arid as the outer, and decidedly inimical to *Cattleyas*. In Sydney, air can and should be given much more freely than here, the inner and outer atmosphere having similar moisture content. Should dry, hot days occur with you—and I suppose they may—then our methods must be imitated, though not necessarily closely followed. Air must be so given that moisture is retained, even with an increase of temperature during the day, and compensation given as the heat of the sun wanes, the coolest time occurring early in the morning, before sunrise. I doubt if artificial heat in your climate would ever be required in the summer. The cold, unsettled summer here has necessitated pipe heat being used at night in many localities and prolonged into the day, causing a bad atmosphere when a sudden burst of sunshine occurs.

CATTLEYA FRANKENSTEINIANA

A beautiful new hybrid raised by Mr. W. Schmidt at his home in Germany and named after his head gardener

Photo. by Mr. W. Schmidt.

The humidity of your atmosphere should reduce the frequency of waterings at the roots. I had the impression, sometimes, that water was too often applied, and that it would be better if either baskets were used in the place of pots, or the old-fashioned method of potting reverted to, *i.e.*, the plant was raised above the rim of the pot; the compost being mounded, more drainage in proportion being given. In both cases water drains away more freely, and the tendency to sodden compost is largely avoided. In baskets the roots emerge between or over the bars; in the mounded system they follow the compost, not always closely, but there is not the bother caused by the roots clinging to the wood.

Resting in your climate would, perhaps, need more judgment than here; the fact that your winter days are more sunny and warmer than ours would not seriously affect, but might shorten the rest. Without experience, I cannot say. Winter growths with you would have probably better facilities for finishing, but constantly produced there is a tendency for the plant to acquire a non-flowering habit. Many hybrids, particularly those from *Brassavola Digbyana*, do not appear to require the long rest given to the parent. Briefly put, I would suggest that all *Cattleyas* and their derivatives be rested when growth is matured, and no effort be made to incite them till growth appears, then help them as much as possible.

Your bush houses cannot well be used here, but their utility in your climate was at once apparent to me, with the free circulation of

(*Continued on Page Thirty*)

Cool House Culture

T. H. JAMES, *Longueville, N.S.W.*

● Several letters which I have received lately from readers of this Review who have bush houses only, and have not yet grown any Orchids but are anxious to do so, prompt me again to endeavour to dispel the notion held by many that expensive glass houses, artificially heated, are essential to the cultivation of Orchids of any kind. That is far from being so.

Except in the southern parts of Australia and the elevated districts, the following varieties may be successfully grown in bush houses, provided they are not too heavily shaded. Better results would be obtained if the house be protected from the cold southerly and westerly winds.

Cymbidiums
Dendrobium nobile
„ *infundibulum*
„ *Jamesianum*
„ *Pierardii*
„ *Wardianum*
„ *Crassinode*
Thunias
Lycastes
Vanda coerulea
Many *Cypripediums*
Coelogyne cristata

COELOGYNE CRISTATA

A single spray of this lovely, white species, suggested by Mr. James as amongst those suitable for bush house culture. The flowers attain a size of over three inches across, and are white with a yellow-stained lip. Of easy culture, this is an ideal beginner's orchid.

Plant grown and photo by Mr. T. C. Harveyson

As to *Cymbidiums*, several growers in the Northern parts of this State and in Queensland have advised almost complete failure. Possibly their plants were in pots too small for the conditions under which they were grown, or exposure to wind and sun may have resulted in the roots suffering by contact with the sides of hot, dry pots. I would suggest, in such circumstances, that the pots be let into the ground or surrounded with moss. This would prevent too rapid evaporation and would keep the pots cool. Most of my own *Cymbidiums* were rather disappointing this year. On two occasions, during my temporary absences, they became very dry, and consequently many failed to flower owing to the check to their development. On repotting some of them recently, most of the roots were found to be dead. I shall see that this state of affairs does not occur again this year.

With regard to *Dendrobiums,* if in pots, drainage should be ample, covered with a few inches of fibre and topped with living moss. This method, as opposed to mixing moss with the fibre, although necessitating very frequent watering during the spring and summer months, would prevent excess moisture at the roots resulting from rain during the winter. A wet, soggy compost during winter is deadly. Better results would probably be obtained by using baskets, but even then the fibre should predominate decidedly in the compost. *Vandas* would be better in pots quite three-quarters filled with crocks, then a little fibre, and finally moss, which, if possible, should reach to the base of the lower leaves.

Thunias are of course, entirely terrestrial—that is, they grow in the soil—and should be potted in a light, rich soil and kept right out in the open until the buds show. They should then be protected from wind and weather as much as possible. Do not pack the soil too tightly, as the roots will meet with difficulty in penetrating it. *Cymbidiums* may also be treated as terrestrials. They require the partial shade of the bush house, but grow splendidly out of doors in a semi-shady sheltered spot. Broken sunlight is necessary for their welfare.

Lycastes, *Cypripediums* and *Coelogyne cristata* require a little leaf mould or coarse bush scrapings mixed with the fibre and moss over a moderate layer of drainage. *Lycastes* prefer shady conditions and the roots should never be allowed to become dry, even in winter. Dry, windy and excessively sunny positions would soon kill these plants. *Coelogyne cristata* succeeds best in shallow pans. It dislikes disturbance and, generally, will not flower until somewhat pot-bound.

In the cool glass house, now that the hot weather has arrived, and new growth is in full action, the most important matter requiring attention is watering and the maintaining of humid conditions. Where the house floor is the natural earth, it should be lightly forked over and limed to correct undue acidity caused by twelve months of watering and consequent hard packing. Loosening the surface could be done several times each year. One correspondent advised that on the natural earth he occasionally spreads a liberal dressing of decayed leaves and litter from the bush to produce a natural forest condition. He claimed that the gases arising from decaying vegetable matter assisted Orchids. There may be something in this claim, and the nearer a grower can approach to the conditions under which Orchids grow in a state of nature, the greater the measure of success that should result.

In the matter of watering, if moss forms a considerable part of the compost in which epiphytic Orchids are grown, the moisture will be retained longer than if fibre predominates, and water should be applied accordingly. Several of my *Cattleyas* and *Dendrobiums* have been repotted this year in pure fibre topped with live moss, the method which has been so successfully followed by Newcastle growers.

As to shading, orthodoxy demands blinds or some other method of reducing the intense light in summer and reducing the temperature. Some of the most luxurient Orchids I have seen were grown under glass which was painted with a white oil paint stippled with a piece of mosquito net which permits small pencils of direct sunlight, constantly moving, to reach the plants. No shading was used, and the plants obviously appreciated the conditions.

In a scientific treatise I recently read on "Light" it was stated that the forenoon sun has a considerably more burning effect than the afternoon rays. This may be of interest to those who consider blinds to be necessary.

Tying of Orchids

● It will be noted that, in a state of nature, all plants so arrange their leaves that the upper surface only is exposed to direct light. Many Orchid growers, whether for the sake of neatness or some other reason, tie their Orchids, particularly *Cattleyas,* with their leaves straight up in the air. Unless some care be used in this operation the under surface of the leaves may become exposed to direct light, which ultimately may have an injurious effect.

Vandas

E. J. BEARD, F.C.A. (Aust.), *Brisbane, Q.*

This is the concluding portion of Mr. Beard's interesting article, the first part of which appeared in our June issue.

The following is a list of the principal varieties of the genus *Vanda*, with their descriptions:—

VANDA ALPINA: A native of North India growing in high altitudes. It has a dwarf habit and short leaves. Flower scapes one or two, flowers smallish. Sepals and petals greenish-yellow, side lobes dark purple, front lobe striped with dark purple and yellow, with two short horn-like processes at the apex. It blooms in summer.

VANDA AMESIANA: This also is a dwarf grower and comes from Burma. It has semi-terete leaves grooved like our *Dendrobium canaliculatum*. Flowers on erect scapes, one or two inches across; white, tinted with rose. Lip amethyst purple with paler margin. It blooms in early winter. It was introduced from the Shan States, where it was found growing on rocks. It was no uncommon sight for collectors, when gathering it in the early morning, to find it white with hoar frost. When growing, it likes plenty of moisture, but when at rest water should be lessened materially.

VANDA COERULEA
The blue Vanda, described in Mr. Beard's article
Plant grown by His Honour Judge Markell. Photo. by Mr. H. J. R. Overall.

VANDA BENSONI: Also a native of Burma. It has stems up to a foot or eighteen inches high, and flowers in spring. Flowers are yellowish-green, marked with light brown with a lip of purple.

VANDA BICOLOR: This variety comes from Northern India, and resembles *Bensoni*. I have not seen it flower in Queensland, but I hope to shortly, as a plant brought back recently from Ceylon is doing well.

VANDA COERULEA: This is found in India, Burma and Assam, and is a very popular variety. It blooms in the autumn, and although variable as to size and colour it is a beautiful Orchid. The plants grow up to 3 feet high, although seldom seen over two feet in Queensland. Colours vary from a pale blue to a deep sky-blue. It is partial to the morning sun, but care should be exercised in watering so that no water lodges in the leaves. Flower scapes make a glorious display, with flowers up to 4 inches across.

VANDA COERULESCENS: This is a small grower with small flowers of about one inch diameter. The colour is a mauve-blue with a violet lip. It is one of the smallest of the Vandas, and does not do well in Queensland. It is a native of Burma, and blooms in summer.

VANDA CONCOLOR: This variety hails from China. Its two-inch flowers are fragrant and have yellowish-brown sepals and petals, which are white externally. The lip is white and is marked on the side lobes with red. The mid lobe is yellow, marked with brown. It blooms in summer.

VANDA CRISTATA: Another variety from Northern India, having two-inch flowers of a yellowish-green colour with a broad crested lip of deep purple, at the apex of which are three horn-like lobes. It blooms in early summer.

VANDA DEAREI: This very rare variety has never been seen by me, and I cannot find any record of it with description. I do not think many have reached Australia yet, for it is seldom, if ever, catalogued.

VANDA DENISONIANA: This is another Burmese variety, somewhat similar to *Bensoni.* Flowers are two inches in diameter, of a whitish colour with a lip of white shaded with green and yellow. It blooms in spring.

VANDA HELVOLA: A Javanese variety with growths similar to *tricolor,* but not so showy. Flowers are two inches across and are of a straw colour shaded with purplish-brown and having a brighter purple lip. It blooms in early summer.

VANDA HOOKERIANA: A native of Malaya and a most desirable variety. It has cylindrical leaves, very similar to *teres,* with flowers up to three inches across. Sepals and petals white, flushed with light purple. There is a three-lobed lip, the centre fan-shaped and thickly spotted with amethyst purple. It blooms in summer. It was first introduced from Borneo in 1882, and collectors state that it is found in marshy country clinging to the tops of bushes and in the blazing sun. In Kinta it is so plentiful that it is a common sight to see the dining tables covered with these flowers. It is known in Kinta as the Kinta weed.

VANDA INSIGNE: Another native of Malaya, with two-inch flowers. Sepals and petals tawny yellow with chocolate spots. White lip with rose-purple mid lobe. This variety also blooms in summer.

VANDA KIMBALLIANA: A small-growing variety, seldom reaching a height above a foot. The leaves are channelled like *Amesiana.* Flowers from one to two inches across, white, flushed with purple. The lip is three-lobed, yellow spotted with red-brown, the mid lobe being bright amethyst-purple. It is a native of Burma, and flowers in the autumn.

VANDA LAMELLATA: A dwarf grower from Philippines, with two-inch flowers, light yellow blotched with chestnut-brown. It blooms in the winter. There is another variety known as *Boxalli,* which has cream coloured sepals and petals and a rose-purple lip, spotted with a darker purple.

VANDA LIMBATA: This variety comes from Java, and blooms in the summer. Flowers are two inches across. Sepals and petals are cinnamon-brown margined with yellow. The lip is a light rose-lilac colour, margined with white.

VANDA LUZONICA: Sepals white, stained at apex with rose-purple. The petals are similar but with purplish markings in broken lines to the base.

VANDA PARISHII: A dwarf growing variety from Burma, with broad fleshy leaves. The flowers are scented, and measure up to two inches across. The sepals and petals are greenish-yellow, spotted with brown. It has a lip of magenta-purple with a paler margin. There is a variety known as *Marriottiana* with sepals and petals of a bronzy-red, shaded with brown, the lip being white, streaked with rose-purple. It blooms in summer.

VANDA PUMILA: A native of Sikkim and a dwarf variety. It has flowers up to three inches across, sepals and petals white with red spots at the base. Lip crimson-maroon, striped with white. It blooms in the spring, and is not often seen in local collections.

VANDA ROXBURGHII: There are three varieties of this interesting Vanda, which is found in India, Burma and Ceylon. The one usually grown in Queensland has flowers two inches in diameter, fragrant but variable, pale green, tessellated with brown, lip white with a purplish mid lobe. On a recent visit to Ceylon, I was fortunate to obtain a pink and

(*Continued on Page Eighteen*)

A Visit to the Newcastle Growers

R. M. STEWART, *Neutral Bay, N.S.W.*

In July last, a party of members of the Orchid Society of New South Wales visited Newcastle at the invitation of the members of the Orchid Circle of that City. Six collections were inspected and those of Messrs. J. J. Genders and E. McElwaine were described in our last issue. We here describe the collections of Messrs. Davidson and Robertson, and those of Messrs. McGilvray and Rundle will be discussed in our March issue.

● Leaving the home of Mr. McElwaine, we proceeded to that of Mr. Davidson, also at Hamilton. Mr. Davidson's house is built on

PHALAENOPSIS SCHILLERIANA
A fine basket of this popular species
Plant grown by Mr. Miles R. Fox. Photo by Mr. J. R. Bailey.

to the rear of his residence, is almost flat-roofed and low. It is unheated. Here again we were astonished to see *Phalaenopsis* thriving under cool conditions—*Stuartiana, Schilleriana* and *Aphrodite* were all well represented by fine, healthy specimens. Our eye was immediately attracted on entering the house by a magnificent spike of *Dendrobium Goldei*—the lovely deep mauve-purple blooms being carried on a most vigorously growing plant.

Mr. Davidson's *Cattleyas* were all in splendid condition, and seemed to be appreciating their being grown without heat. We were much interested in several huge plants of *gigas* growing to perfection and showing obvious signs of expert cultivation. Mr. Davidson had had these for many years. The "Slippers," too, were flourishing. *Dendrobium superbiens* was represented by a huge plant. As with Mr. McElwaine's plants, which were mentioned in our last issue, this was definitely improving on its native growth—excellent growing without artificial heating.

We were pleased to note that Mr. Davidson did not confine his activities to the varieties usually cultivated by growers. We noted a fine plant of *Brassia verrucosa,* that rather weird flowered variety, with its long sepals and petals, and also some nice *oncidiums*, amongst which were *Lanceanum* and *papilio*, and *Kramerianum* —typically warm growing subjects.

Mr. Davidson's collection was essentially healthy, and he has, in company with his fellow growers of Newcastle, done remarkably well in its cultivation.

Still in Hamilton, we called at the home of Mr. Robertson. In the front garden, we noted some attractive shrubs, rather resembling Moreton Bay Fig Trees; we became more interested in them still when we saw more of them in the glass house, being struck, and learned that they were Rubber trees.

Mr. Robertson is the oldest grower in Newcastle—on the question of age we will not commit ourselves, but his collection is the oldest. He has been an enthusiast for over fifteen years. There are two glass houses—both heated, gable-roofed structures of fair size. Here, we found a lover of Orchids in general, not specialising in any particular genus or genera, but growing well the many kinds he had. Against the western glass, in a warm position, was *Vanda Aurora*, which in general resembles *teres*, but is much freer flowering; it is a noted long laster, too, remaining in bloom for upwards of three months. The *Phalaenopsis* were well represented by well-grown plants of *Schilleriana*, *Stuartiana*, and others. These plants had been grown on by Mr. Robertson for from six to ten years, and the majority of them showed no signs whatever of failing. Mr. Robertson's plants flower regularly, and when we saw them they were making several fine spikes. Apart from the *Vanda Aurora* mentioned above, this genus was represented by a very nice plant of *Sanderiana* and a huge specimen of *Batemannii* (*Stauropsis lissochiloides*). The *Sanderiana* is perhaps the finest in Australia from a variety point of view — it is the choice and rare red form. We also noted *Vanda Dearii* and three splendid plants of the closely allied *Arachnathe Lowii*. *Coelogyne asperata* was thriving, but here again, as in other houses in the Newcastle district, we were attracted and amazed by the growth of some of the North Queensland *Dendrobiums*—particularly *Dendrobium Goldei* the bulbs of which were three times the size of the bush-grown ones. *Undulatum*, too, had grown well and had improved on its natural growth. Other *Dendrobiums* noticed particularly were *crumenatum*, *suavissimum*, and a huge plant of that outsize species, *moschatum*.

Passing to the second house, we found the conditions within much the same as in the other. We had previously seen the Cymbidiums outside under a peach tree, and they certainly did not look in the best of condition. This was the only collection of this genus we saw in Newcastle, and they bore out existing belief held there, that the genus was not suited to the apparently peculiar conditions of the Coal City. We still cannot understand the reason for this, and would earnestly suggest that the growers in Newcastle persevere, as Mr. Robertson appears to be doing, in their attempts to cultivate this most attractive subject. In the second house, a small group of *Miltonias* was growing fairly well. These plants were not actually thriving, and we understand Mr. Robertson had not had them long, and they showed some signs of thrip. They were well alive, however, and growing, which is something of note when speaking of *Miltonias*. In this house were kept the *Cattleyas* and their allied genera. The *Cattleyas* were in fair condition, but also showing faint signs of thrip. We noted *Schomburkia undulata* and *Laelia cinnabarina* among the less well-known species allied to the *Cattleyas*. In this house was a nice collection of "Slippers" and more *Dendrobiums*. Amongst th *Cypripediums* we particularly noticed a very large and well grown plant of *glaucophyllum*.

We realised when inspecting Mr. Robertson's house, that we were seeing Orchids which had been grown for many years, and which were not recent importations, and we compliment the grower on his good work. Nevertheless, we would suggest that both houses be given a thorough cleaning up. There were very definite traces of thrip, scale, and mealy bug, and many of the plants had the appearance of not having been moved for a considerable time. This is a great pity, for Mr. Robertson has accomplished something in growing his plants well for so long—particularly the *Phalaenopsis*. It is not often that we are able to see plants which have been cultivated for a long period of years—most of our growers being comparatively newcomers to the cult. Mr. Robertson's methods of culture have been sound, certainly, but liberal use of the spray and brush seems very necessary. Replacement of worn-out potting mixtures seems to be necessary, also, in some cases. We hope again to visit this collection, next year, when doubtless we will find improvement where this is necessary. Mr. Robertson is a keen grower, and took careful note of our comments, which he expressly sought, and we have since heard from him that considerable improvement is noticeable already. He has a most varied and interesting collection.

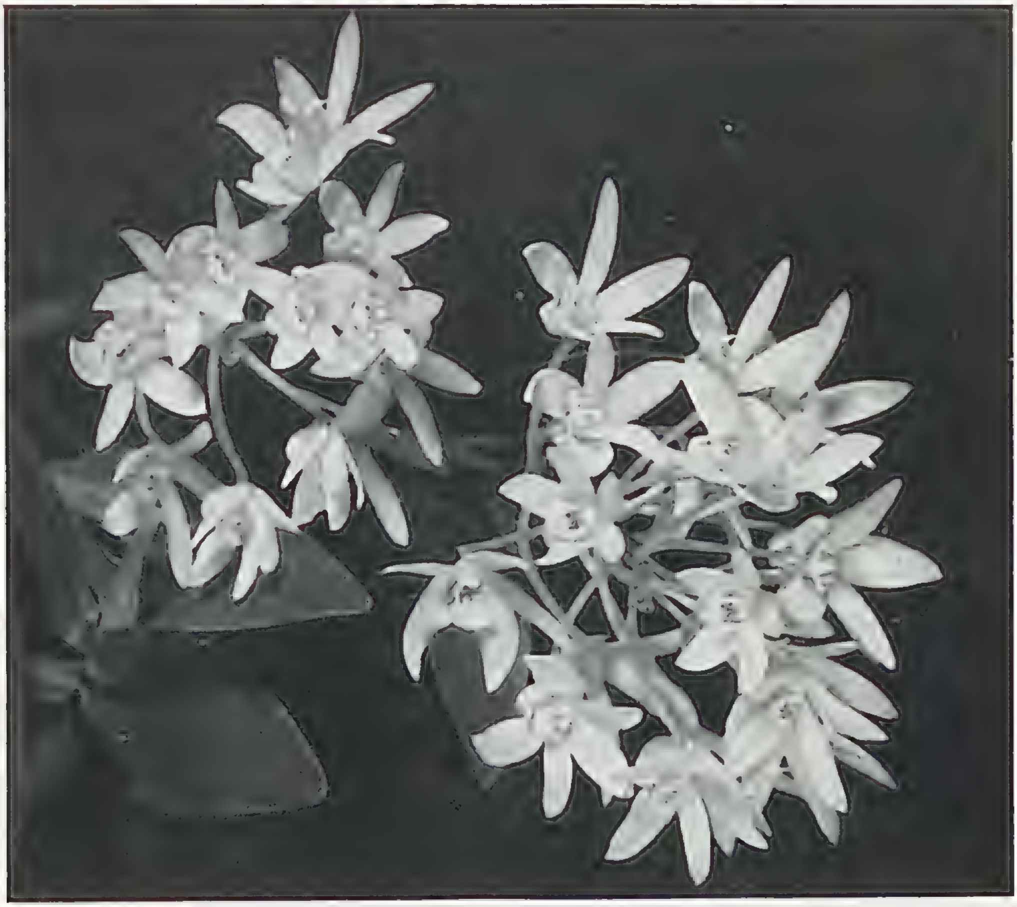
More About Dendrobium Falcorostrum

Mrs. D. J. BARR, *Bellingen, N.S.W.*

● The beautiful Bellinger River, where I am fortunate to have my home, flows into the Pacific some three hundred and fifty miles north of Sydney. Turning westward at its mouth and following its northern arm through its lovely and fertile valley, we reach the foothills of the Dorrigo Range. Climbing steeply, in some four miles we attain an altitude of over three thousand feet and find ourselves at the home of *Dendrobium falcorostrum,* considered by many Orchid lovers to be the most beautiful of our native species.

Seldom found below the three thousand foot level, *Dendrobium falcorostrum* grows almost exclusively on the Negrohead Beech tree, many of which I have seen literally covered with plants. The picture of loveliness presented by such a tree with its Orchid burden in full bloom must be left to the imagination—it is beyond my powers of description—and the exquisite perfume which permeates the scrub is a sensation which will never be forgotten.

The pseudo bulbs of *Dendrobium falcorostrum* are usually from ten to twelve inches in length, but I have found them up to eighteen inches. The racemes are robust and carry up to eight blooms, pure white, with yellow, and sometimes purple, markings on the labellum. Even



DENDROBIUM FALCOROSTRUM

This beautiful Australian native is described by Mrs. Barr in the article on this page.

Plant grown and photo by Mr. T. C. Harveyson.

in the dense scrubs which is their home, they choose the sunniest positions, and there is a marked difference in health between the plants which receive sunlight and those which live in shade—the latter seldom flower.

CYMBIDIUM ERICA SANDER

A fine spike of this choice apple-green hybrid
The lip is cream, with red spots

Plant grown and photo by Mr. E. A. Hamilton.

Though at one time, this *Dendrobe* was very plentiful on the Dorrigo Plateau, and so presumably prolific in its seeding, I have never, in the course of my extensive wanderings in its haunts, discovered a plant carrying seed pods. Their absence is very noticeable, and I have searched for them, but always without result, and yet the many other species which flourish in the neighbourhood, no matter how small, all carry pods.

I have come to the conclusion that *falcorostrum* needs a richer mixture when cultivated than most *Dendrobiums*. It seems to be a gross feeder, for I have noted the great difference between plants growing on dead trees and those on live hosts. On the former, the pseudo bulbs are inevitably undersized and the plant appears under-nourished. The pseudo bulbs are only about four or five inches in length and always yellowish in colour—barely existing. At first I believed these to be a different variety, but after growing them for some time, their pseudo bulbs would attain the full size and acquire the green, healthy colour of plants which had been taken from live trees.

I need say little with regard to the cultivation of *Dendrobium falcorostrum*—beyond impressing readers with the ease with which it can be grown. I have them growing to perfection, suspended in wooden rafts or wire baskets, or else potted, and the composts vary between the correct *Dendrobium* mixture, staghorn peat and decayed soil—little difference is noticeable.

Though the majority of *Dendrobiums* require a withholding of water during the cooler weather, this does not seem to be the case with *falcorostrum*—or, for that matter, with our other New South Wales *Dendrobiums*. Very often a week or a fortnight of solid rain will pour down and saturate everything in the bush house, and this seems to do nothing but good. *Dendrobium falcorostrum* is reared in a hard school. It revels in severe frosts in the winter, and the bleak, cutting westerly winds which whistle down from the New England Ranges do not trouble it. Yet in summer it enjoys often intense heat.

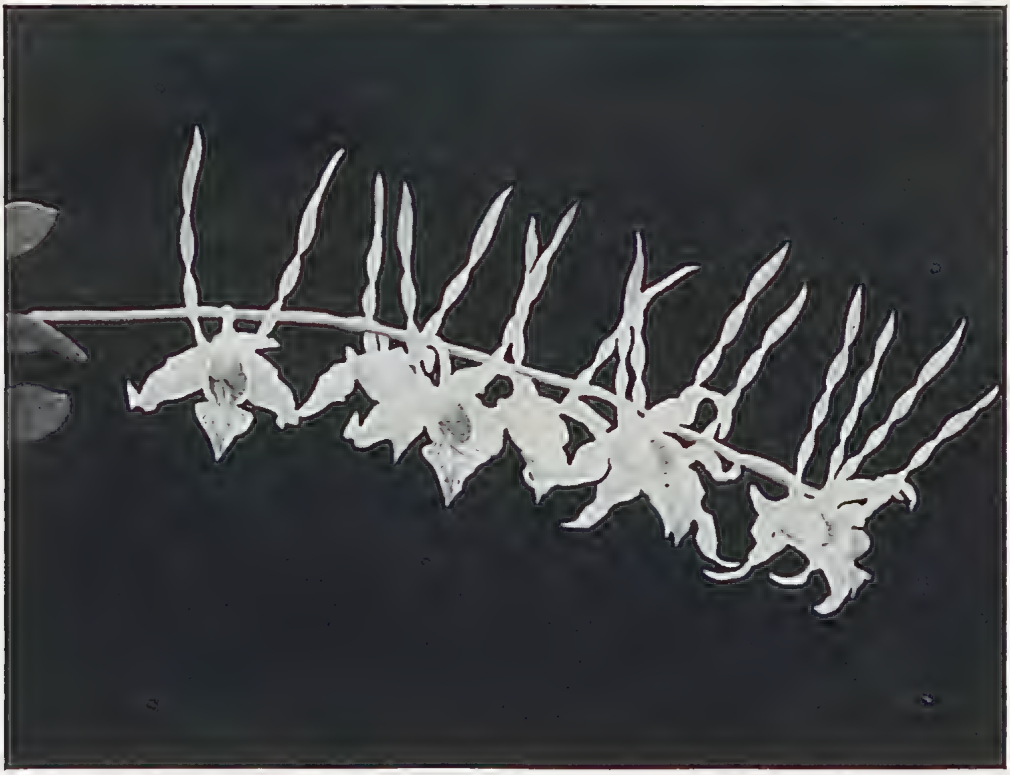
Its chaste white beauty, its perfume and its ease of culture should endear this species to everyone. It is with sadness that I have to urge you to acquire your plants soon—it has suffered severely from the depredations of vandals and the spread of settlement is quickly clearing the scrubs in which it makes its home.

Orchids in Sumatra

His Honour, Judge H. F. MARKELL, K.C., B.A., LL.B.
Warrawee, N.S.W.

This is the concluding portion of this interesting article which commenced in our last issue.

I did not worry very much about this, because I had been told that there were many plants at Prapat which was to be my next port of call, and where I intended to stay a week at least. Prapat is reached from Brastagi after a three or hour hours run, being some 70 or 80 miles away. It is at an elevation of 3,000 feet and is on the shores of a magnificent fresh water lake called Lake Toba. This lake is about 50 miles long, and some 15 miles wide, the centre being occupied by a large island called Samosir. It is by far the most beautiful place I have ever seen. The sides of the lake descend sheer into the water from some thousand or fifteen hundred feet up, and are almost perpendicular. As one would expect from this, the lake is very deep, the depth in the centre being 3,000 feet. All around the shores of the lake are countless Orchids of various types. If one takes a launch and goes for a few miles around the lake, amazingly great quantities of Orchidaceous plants are to be seen. There were many species which I did not know, and which I was told by my guide, who, fortunately for me, was an enthusiast, were not of very much account. But I saw hundreds of plants of *Vanda Sumatrana* within a couple of miles of the hotel. These were very large and were growing on a cliff face over-



DENDROBIUM MINAX

This unusual species is aptly nicknamed the "Antelope Orchid." It has pure white sepals and petals—or "horns," and carries purple markings on the labellum.
Grown by Mr. Miles R. Fox; photo by Mr. J. R. Bailey.

hanging the lake, their thick roots hanging directly over the water, and attaining a length of some 6 or 8 feet. They were growing on nothing but rock, without soil of any description, and appeared to obtain the whole of their nourishment from the water vapour arising from the lake. I secured a couple of large specimens which I brought home, and they are growing quite satisfactorily. I do not know if my readers are familiar with this species. It has a rather large reddish-brown flower with a peculiar phenol-like smell. It is somewhat rare, and on that account, fairly valuable. There would be no difficulty in obtaining very large quantities of this plant, in a short time, on the shores of the lake. In addition, I saw a great number of *Trichoglottis fasciata.* This is a vandaceous plant with very long stems and pendant roots. The flower is quite pretty, being of a greenish colour barred with brown. In addition, there were many other vandaceous plants, such as *Renantheras, Arachnanthes,* etc. I secured specimens of as many of these as I was able to carry, and the majority of them appear to be recovering at this date from their trip. There were also *Coelogynes* (*Rochusseni,* etc), *Erias, Bulbophyllums,* and *Calanthes,* growing around the shores of the lake. I am told that on the higher elevations are also many *Cypripediums,* but I did not see any myself. I noticed a number of *Anthuriums* growing amongst the tropical undergrowth on the foreshores. During a trip around the lake, I saw a number of terrestrial Orchids, such as *Arundinas* and *Spathoglottis,* both in great abundance, the *Arundinas* looking like coarse grass, on the cuttings at the side of the road. Their flowers are quite pretty, resembling a small *Cattleya.*

I collected a number of these, but the great majority of them did not survive the trip home. It appears to me that the only way of transporting them with success would be by airmail. They are very light and this method of transport should not prove unduly expensive. One interesting feature of the roadside was the great number of *Nepenthes* or "Pitcher Plants" growing everywhere. I saw at least six or eight different kinds, large and small. The flower is quite inconspicuous, being greenish in colour and growing on a long stem from the axil of the plant. I collected a number of these as well, but lost most of them as they got too dry on the journey back.

After leaving Prapat, we drove to Medan in the day, and while there, looked around to see if we could find anything of interest. Medan is a very pretty city, being fairly modern and well laid out, and contains many beautiful gardens. I visited an Orchid nursery, and there saw huge clumps of various Vandas and Renantheras growing out in the open. By far the most popular *Vanda* was *Miss Joachim.* This is grown in clumps which attain a height of 8 to 10ft. The various *Renantheras* were flowering freely, and I noticed that they did not seem to come into flower until some 10 or 12 feet long, which probably explains the difficulty most of us have in inducing them to flower under artificial conditions.

We left Balawan the following day, and in due course arrived back at Singapore.

Whilst there, I visited the Botanic Gardens, and was shown round by the Curator, who devoted quite a lot of his time to this end. The gardens are very well laid out and contain a great number of Orchids, all of which appear to be thriving. They were largely the same class of plant as I saw in Buitenzorg. In addition to the gardens, I visited several nurseries where plants were for sale and secured a few specimens. It is very difficult to enumerate the various plants which I saw, as there were so many of them, but I would say that *Vandas* and *Dendrobiums* comprised the majority. It was explained to me that on account of the proximity of Singapore to the Equator, which is only some 80 odd miles away, and the prevalence of rain, it was very difficult to induce plants to rest, and that for this reason it was impossible successfully to flower many species, which are more commonly grown in places where the seasons are more definite. Hence I found that the *Dendrobiums* from New Guinea and their various hybrids were very common, as were also the various terete *Vandas. Cattleyas* grow quite well, but apparently are difficult to flower, and I am satisfied that our climate in Sydney is far superior to that of either Singapore or Java, so far as these plants are concerned. Whilst in Singapore, I had the pleasure of visiting the home of Mr. Laycock, the President of the Malayan Orchid Society, and spent a couple of hours inspecting his exceedingly large and interesting collection. The plants were either grown in the open or in shelter houses, there being no glass houses in the sense that we understand the term. Mr. Laycock has a very large collection comprising specimens of practically every type of Orchid which can be successfully grown in that part of the world. I have no idea how many plants he has, but they must number many thousands.

Orchids and the Man

Part I.—"Brains in the Culture."—Continued

J. MURRAY COX, *Brisbane, Queensland*

This is the second part of an interesting series of talks delivered by Mr. J. Murray Cox to the Queensland Orchid Society. In our September issue, we published the first section of "Brains in the Culture," which is concluded here, and this will be followed in due course by the other parts entitled "Debits and Credits" and "Romance."

● It would be foolish to set out any arbitrary schedule for the guidance of Orchid growers in the matter of watering their plants. The conditions prevailing in particular circumstances must be the key to the problem. If my conditions provide a moist atmosphere and yours a dry one, then it is obvious that I must restrict the quantity of applied water, while you must increase it. Again, if a cool, moist wind is prevalent, less water is required than when a hot, dry wind blows, and dries up the air. But whatever the conditions, the basic principles of a regular cycle remains, and it should be our aim to get as close to this as possible. Boiled down to a few words, the whole secret of Orchid cultivation can be expressed in the following axiom: "Work with Nature — not against Nature."

CYMBIDIUM AURIGA X PAUWELSII
An attractively coloured hybrid
Plant grown and photo by Mr. E. A. Hamilton.

The cultivation of Orchids is of comparatively recent growth as, outside the great botanical institutions such as Kew Gardens, very little interest was taken in this order of plants by members of the public until about a century ago. In 1835 the well-known explorer-botanist, Alan Cunningham, sent home a collection of Australian Orchids, and from that date the growth of the great interest in Orchid growing commenced. Collectors were sent into many parts of the world, and gradually the number of genera, species and varieties grew to the prodigious quantity we know to-day.

The early attempts at Orchid growing were naturally fraught with many disappointments; in fact, it was regarded as a great achievement if an Orchid bloomed once before it died. Lack of knowledge of the conditions under which the plants grew was, of course, the principal contributing factor in this series of failures, and when we consider the materials used in growing them we can only wonder that any Orchid ever lived long enough to flower even once! The growers argued that Orchids were most unusual plants, therefore they would require a very unusual potting compost. They certainly gave them some. One experiment was a compost made up of decayed wood, sawdust, loam and tanner's bark. Having potted the unfortunate plant in this heterogeneous mass, it was placed up against a hot flue by which it was gradually baked to death. The experimenter somewhat naively remarks, "In spite of my efforts, the plant sickened and died." Interest in the fascinating order was maintained, however, and gradually the basic principles of successful Orchid culture were evolved. Such men as Joseph Cooper, B. S. Williams and James Veitch devoted time and thought to the matter, and collected, correlated and published much useful data regarding the climatic conditions under which various Orchids grew, and their manner of growth in their native surroundings. From then on the progress of the cult was rapid, and before very long the pioneers were experimenting in the cross-fertilization and hybridization of different species and genera of Orchids.

Of course, the commercial hybridizing of plants and the raising of seedling Orchids has been reduced to almost an exact science by the great Orchid selling houses of England and America, but there is no reason why the veriest tyro among us should not gain an added interest in this hobby by making a few experiments in the fertilization of Orchids, and the sowing of the resultant seeds. I will not touch on the subject of the actual operation of fertilization—interesting articles have appeared in the "Australian Orchid Review" and the "Orchidologia Zeylonica," giving very clear instructions which anyone can follow.

A famous cook-book prefaced its instruction on the preparation of a hare for the table with the remark: "First catch your hare." I will follow this precedent by saying: "First get your seed-pod." Having done this, you may proceed to try to raise plants from it. Even the production of a good seed-pod does not necessarily mean that you will get good seeds, for a pod may be produced from an Orchid flower by any form of extraneous irritation of the stigmatic surface without the resulting of fertile seeds. Once a pod approaches maturity, a binder should be placed about its middle to prevent splitting of the capsule, and the subsequent loss of the seed. When the pod is thoroughly matured, it should be taken from the plant, wrapped in a light paper, and placed in a dry position so that when it bursts the seeds will be shed into the paper wrapping.

If you examine the seeds with a strong magnifying glass, you should be able to separate the fertile seeds from the others, as the pregnant seeds are thickened in the middle, whereas the infertile seeds look like small pieces of chaff.

The professional raiser of seeds uses what is known as the asymbiotic process of germination—that is, the seeds are started in a culture which gives the essential elements for the nourishment of the embryo plant. For the amateur, however, this method is rather too technical ,and the following simple methods, which are quite within the capacity of any grower to carry out, may help you to get a further interest out of your hobby.

There are several varieties of the procedure, each of which will provide its quota of disappointments and triumphs.

The first of these is to sow the ripened seeds on the surface of the compost in which the parent plant is growing, or on that of some plant of the same variety. A plant in a basket or hanging pot is best, and it is desirable that the quality of the fibre or peat or other potting material of the plant selected shall be reasonably good—sour or rank compost is useless. The surface of the compost should be clipped to uniformity and the plant should be given a thorough soaking with rain water and allowed to drain for some hours. The seeds may then be sown a few at a time from the point of a knife or a pointed piece of wood, and widely distributed over the surface of the potting compost. Once the seeds are sown, the foster parents should never be allowed to become dry. Naturally, the problem of watering the pots without washing away the seeds presents some difficulty. This can be done either by dipping the container so that the water reaches not much less than an inch from the surface, or by spraying with an atomiser the air around and above the plant in such a way that the compost is moistened without disturbing the seeds.

A second method is to prepare a seed-raising case something like a miniature orchid house. It consists of a box with light walls of either calico, window-lite or muslin, and an angled roofing of the same material. It is hung in the warmest part of the Orchid house. The box has a layer of broken crocks for drainage purposes, then a few inches of either osmunda fibre, todea fibre or cocoa-nut fibre, or any other moisture-conserving material. Upon this a number of inverted flower pots are placed to form stands for the seed pots. The next step is to roll in coarse calico or muslin a ball of sphagnum

(Continued on Page Twenty-four)

Dendrobium Ellen

W. SCHMIDT, *Warrawee, N.S.W.*

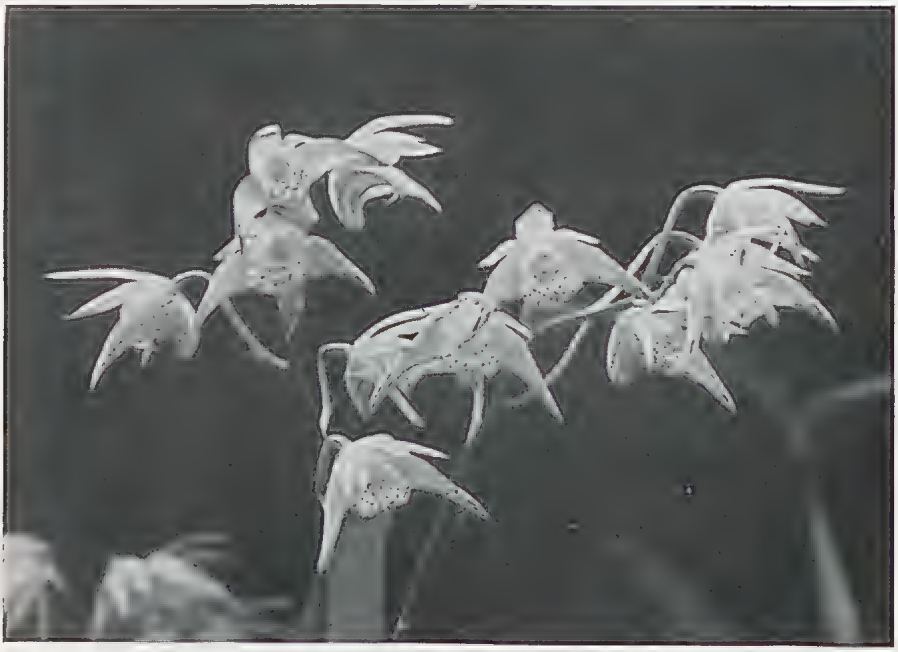
● I do not know whether any artificial hybrids of species, where both parents are of Australian origin, were raised before 1914. If not, *Dendrobium Ellen* will take first place on the list.

The seed parent of this hybrid Orchid is *Dendrobium Kingianum,* with *Dendrobium tetragonum* as pollen bearer. The seeds were sown in April, 1914, and the first plants flowered about four and a half years later.

I was anxious to see how the distinctly different characters of these two parent plants would blend—how the peculiar, pendant habit of *tetragonum* would combine with the erect growth of *Kingianum*—the long, narrow petals and sepals of the one with the compact flowers of the other.

As had to be expected when crossing two species, the flowers of the hybrid are practically intermediate in form, as well as in colour, with perhaps some predominance of the *Kingianum* influence. *Dendrobium Ellen* is quite a pretty little Orchid of erect growth, sweetly scented, very free flowering, and of a pleasing colouring. Flower spikes appear on the old bulbs for a number of years, and also, occasionally, young plants develop on the top of the bulbs, as is very common with *Dendrobium Kingianum,* but very rare in *tetragonum.*

When hybridizing, our main object is, or should be, not only to create something new, but our hybrids should at least in some way show improvement on both parent plants, and I think, even in this respect, this modest little hybrid can claim a good point.



DENDROBIUM ELLEN (Natural size)

The colour of this charming little hybrid is pale rosy violet, with deeper markings at the points of the sepals and petals.

Plant grown by Mr. Wilhelm Schmidt. Photo by Mr. H. J. R. Overall.

Consolidated Index

● Readers are informed that a consolidated index to Volume 1 and 2 of the Australian Orchid Review is now in course of compilation. This index will be included as a supplement to our March issue, in which suggestions will be made for the binding of the two volumes.

Vandas—*Continued from page 8*

a white variety and look forward to seeing the flowers, which I cannot find described in the books of my library.

VANDA SANDERIANA: This is easily the most magnificent member of the Vanda tribe. It is a dwarf growing variety, and comes from the Island of Mindanao in the Philippines. The flowers are five inches across and are almost flat. The upper sepal is soft rose, suffused with white. The lower two sepals are larger and of a tawny-yellow colour, crossed and recrossed with prominent sanguineous-red veins. The petals are smaller than the sepals, coloured like the upper sepal, but with tawny, red-spotted blotch near the base. The lip, though comparatively small, is remarkable in structure; the basal half is concave, of tawny-yellow streaked with red, the front chocolate-purple with three prominent ridges. This plant loves the warmest conditions possible, and unfortunately has not so far survived many seasons in Queensland, probably through wrong treatment. It is a most desirable variety, and, although rather expensive, should be in all collections. It blooms in late summer.

VANDA SPATHULATA: A tall-growing variety from India and Ceylon. The flowers, which are two inches across, are golden-yellow and are borne on long, erect scapes. It is variable and is frequently taken for a *Renanthera,* which is somewhat resembles.

VANDA SUAVIS: This is another beautiful variety that comes from Java, and is fairly hardy if looked after. It varies greatly in form and colour. I have about a dozen varieties of *suavis* so dissimilar that it is remarkable that they have not been reclassified. The flowers are up to three inches across with a white base to sepals, and petals sometimes spotted and sometimes blotched or barred with blood-purple or light purple or chocolate-purple with a rose-purple lip. The sizes of the spots are so various as to make few of the plants exactly alike. It is a most desirable Orchid in every way and does remarkably well in Brisbane with me and makes a very fine show of flowers and perfume in the spring months.

VANDA TERES: A very beautiful and hardy spring-blooming Vanda from India and Burma. It was discovered in Sylhet early in the nineteenth century by Dr. Wallich, and although plants were sent to England in 1829 no flowers were seen until the Duke of Northumberland flowered it in 1836. Travellers and collectors who have seen it growing in its native habitat state that it is always found exposed to the full glare of the sun.

My experience of it is that it is a sun-lover and will not bloom in Brisbane unless given a position in the sun. It has terete stems and leaves and attains a height of up to ten feet or even higher. Flowers are up to four inches across. The sepals are white, tinged with rose, the petals are rose-magenta, the side lobes are rounded, of orange-yellow banded with red spots on the inner side; the front lobe is orange, spotted with red. The apical portion is spreading and of magenta-rose colour. There are a number of beautiful varieties of *teres,* the gayest of the lot being *Andersonii,* which is now in flower with me. There is also a white variety called *V. candida.*

VANDA TRICOLOR: A very fine spring-blooming and fragrant variety from Java which, like *suavis,* is most variable and does remarkably well in Brisbane. The plants are difficult to separate from *suavis* when not in bloom, as they have a very similar habit of growth. The sepals and petals are whitish-yellow, spotted with reddish-brown, the petals being sometimes twisted as with *suavis.* The lip is three lobed, whitish, the mid lobe magenta-purple streaked with red-brown. The lip is slightly convex with three ridges. No Orchid-house is complete without the delightful fragrance this grand old Orchid gives regularly every spring. I have some plants that I have been growing for the past forty years, and they were recently described by a southern visitor as "trees" on account of their height. There are quite a number of varieties of *tricolor* and the best of which I consider to be *planilabris.*

VANDA WATSONI: A native of Annam found by Sander's collector, Micholitz. It is closely allied to *Kimballiana,* but differs in its white flowers, concave lip and short rounded sac instead of a long spur. It grows at an altitude of 5000 feet in the sun.

HYBRIDS: I find that the first hybrids raised were principally from *coerulea* and *teres. Coerulea* has been crossed with *Bensoni, Kimballiana, Roxburghi* and *tricolor.*

Teres has been crossed with *Hookeriana, suavis* and *Aerides vandarum.*

Coerulescens has been crossed with *parviflorum.* There have been many others, but the list is too long to enumerate here.

Dendrobium tetragonum A. Cunn.

P. A. GILBERT, *Lakemba, N.S.W.*

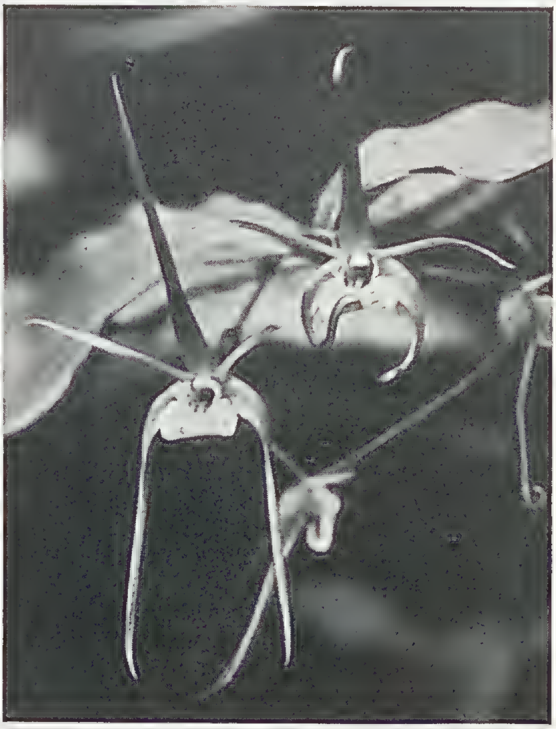
● As a vernacular name, it is doubtful if either "Spider Orchid," or "Tree Spider Orchid," is appropriate for the above species, as "Spider" enters into combination with other names in New South Wales, Victoria, Tasmania, South Australia, and Western Australia, to popularise the genus *Caladenia,* "Spider Orchid" being particularly applied to *C. Patersonii.* "Spider" should, therefore, be retained for the genus Caladenia. In this paper, I am adopting the name of Four-angled Dendrobe, which, if it lacks euphony or "poetry," is at least descriptive.

The following extract, of historical interest, is taken from Veitch's Manual (1887-1894), Vol. 1, p. 80: "Discovered by Allan Cunningham, about the year 1820, in the dry shady woods around Moreton Bay, and subsequently detected by other explorers in the neighbourhood of Rockingham Bay, on the banks of the Hastings and Macleay Rivers, and in other localities near the east coast of Australia. It is one of the most singular of Dendrobes, that merits notice on account of its remarkable flowers and curious habit. The specific name, literally 'four-angled,' refers to the stems."

A close study of our native Orchids, during their periods of florescence, reveals many interesting variations in form and colour. *D. tetragonium* is one of our characteristic Dendrobes, and, if not as singular as *D. cucumerinum* in its vegetative appearance, is equally interesting on account of the great variability of its flowers, and its peculiarly shaped pseudo bulbs. The pendant pseudo bulbs of a well-grown plant are very graceful, while the flowers, though small, compensate for the smallness by their numbers, and delightful vanilla perfume.

The Four-angled Dendrobe has an extensive distribution, being found in the vicinity of Cairns, North Queensland, 16° South, and on the Cambewarra Mountains, South Coast, New South Wales, 35° South, approximately a stretch of fourteen hundred miles. It is chiefly coastal in its dispersal, but in parts it extends from the coast to the eastern slopes of the Great Dividing Range, forty-five miles or so inland. Mr. A. W. Dockrill, of Kogarah, N.S.W., has observed it north-west of Kyogle, New South Wales, while Mr. E. L. Hayes, of Campsie, and I, found it growing ten miles or more inland from Wyong. South of Sydney it is decidedly coastal.

Naturally, a species with such a wide longitudinal distribution could be expected to vary in some respects. Along the expanse, many types of pseudo bulbs are found, but no type seems peculiar to any particular locality, excepting a pale green form to be mentioned later. The North Queensland specimens, however, are generally longer than the southern examples, and consequently have more attenuation near the base than the plants from cooler districts. South of Sydney I have observed pseudo bulbs just as long as those on some plants received from Queensland. The length of the pseudo bulb varies from a few inches up to eighteen or more, the stem-like part varying in length more than the fleshy internodes.



DENDROBIUM TETRAGONUM
Plant grown and photo by Mr. H. J. R. Overall.

The species usually flowers profusely during the latter part of September or early in October, in the coastal brushes or rain forests of New South Wales, where it more frequently occurs on a rough-barked tree known as Scrub Myrtle, *Backhousia myrtifolia,* growing on the banks of mountainous creeks. Infrequently it is also found on a somewhat smooth-barked tree called Swamp Mahogany, *Tristania laurina,* growing in watercourses. On the Scrub Myrtle it is freely dispersed on the trunk, from a few inches from the ground to the uppermost branches, mainly on the shady side, growing most luxuriantly in densely shaded gullies, where the air is cool and damp during the night. On the Swamp Mahogany, however, its point of attachment is usually where the bark is roughened, or where moss and decay accumulate about a tuft of suckers, otherwise the smooth bark of the tree offers little or no suitable germinating beds for Orchid seeds. A number of different species of native flies, bees, wasps, moths, and beetles, visit the flowers, but the number of pods which set after their visitations is infinitely small.

The largest plant I have found of this species was at Helensburgh, N.S.W., containing thirty-eight pseudo bulbs, carrying ninety-eight flowers. the plant was suspended from a branch of the Scrub Myrtle hanging over a permanent rock-pool, and thus being assured of moist surroundings, the position favoured vegetative growth. Mr. E. L. Hayes, in the same locality, found a plant with twenty-five pseudo bulbs carrying one hundred and eight flowers. Sometimes the flowers will last several weeks if kept in the shade and free from wetting. Under cultivation, the Four-angled Dendrobe thrives when strapped to a large piece of tree-fern with copper wire over a pad of sphagnum moss. It requires a reasonable amount of warmth, shade, and moisture while growing, and a cool rest when dormant. North Queensland plants prefer warmer growing conditions to those from New South Wales, with an intermediate rest.

F. Manson Bailey, in his "Queensland Flora," remarks that the "Size and colouring of flowers is very variable, but I have not found this constant enough to name varieties." During 1928, when Mr. E. L. Hayes, of Campsie, and I were investigating a gully in the Illawarra District, we came across several plants of an interesting variety of this species. The plants were not nearly as robust as the common type. The leaves and pseudo bulbs were pale green in colour, whereas the common variety has dark green pseudo bulbs with a reddish tinge, and dark green leaves. Since our first find, a number of plants of this light variety have been recorded south of Sydney by Messrs. Hayes and Dockrill, and myself. During 1932 I sent a few flowers to Mr. W. H. Nicholls of Melbourne, for examination, he advising me that he had not seen the variety before.

Colour and structural variations are always attractive in the study of Orchids, and in these respects the Four-angled Dendrobe is a peculiarly interesting example. After the find in the Illawarra I set about collecting specimens to determine to what extent the species varied, and, having made notes on hundreds of flowers from various parts of its range, I find that they approximately fall into three categories, which I propose to designate as varieties: *variabilis, giganteum, Hayesianum.*

Var. *variabilis* has three well-defined colour variations, and many minor differences: (1) a greenish-yellow perianth, with reddish markings on a pale yellow labellum, (2) a reddish-brown and greenish-yellow perianth, with reddish markings on a pale yellow or creamy labellum, (3) a reddish-brown and greenish-yellow perianth, with a creamy labellum without markings. Sepals up to 1¼ inches long (32 mm). In most variants the labellum is lobed, but in some it is entire. This variety is generally distributed throughout the extent of the range of the species, flowering during September and October in Eastern New South Wales. The North Queensland Naturalists' Club records May as the chief flowering month—*vide* "The Australian Orchid Review," Vol. 2, part 1., p. 29.

Var. *giganteum* is a North Queensland variety. Mr. W. H. Nicholls, the well-known Victorian authority on Australian Orchids, sent me particulars of an interesting variant of *giganteum.* He writes: "Another very fine form comes from North Queensland, with flowers spotted like a leopard. This specimen flowered last month (September), and when the flowers withered I was surprised to find another crop of buds developing. They will be out in a week or so (November). These flowers are very large for this species, the sepals measuring up to 2½ inches long (63.5 mm). The callus ridge on the lamina of the labellum is densely ciliate." I received a plant from near Cairns, which had pseudo bulbs 18 inches long, and when it flowered on 17/10/1930, the sepals measured exactly 2½ inches long, the petals 1½ inches. The perianth was pale yellow edged with reddish-brown, the labellum being lemon-yellow and very large. Mr. E. L. Hayes has a similar variety from the same locality, while Mr. A. W. Dockrill informs me that he has plants of *giganteum* which flower intermittently from spring till autumn.

Var. *Hayesianum.* Perianth pale greenish-yellow to pale yellow, labellum creamy white to white, the complete flower devoid of any markings. Pseudo bulbs and leaves pale green. Flowers from September to October. The flower,

(*Continued on Page Twenty-six*)

Orchid Growing in the Desert

J. T. BICKLE, *El Paso, Texas, U.S.A.*

We welcome this article from another overseas grower and compliment him on the success he has achieved in overcoming very adverse conditions.

● Before commencing a discussion on the conditions I have had to overcome in this part of the world, I would like to thank you for the first five issues of your publication, which were received with pleasure and read with interest. I wish to congratulate you on the whole makeup of your periodical, which is full of life and vitality.

I am only quite a small grower — Orchid growing being a very satisfying and delightful hobby of a hard worked mining engineer. El Paso is, I think, about the driest town in the United States—15% of relative humidity being quite a high reading. The country is desert, with temperatures rising to and staying at beyond the 100 degrees F. mark. We have sunshine practically the whole year round, with very few cloudy days.

SACCOLABIUM GIGANTEUM

A native of Northern India, this pretty species bears long, pendulous racemes carrying many flowers of quite large size for the genus. The sepals and petals are white, the labellum being bright amethyst-purple

Grown by Mr. Miles R. Fox. Photo by Mr. J. R. Bailey

From the remarks above, one will gather that El Paso is not a Paradise for the Orchid grower, yet I have been able to grow with success, more or less, *Cattleyas* and their hybrids, *Phalaenopsis*, some *Dendrobiums* and a few *Cypripediums.*

The accomplishing of even this much has involved a great deal of experiment—resulting in a lot of failures—more or less disastrous—and some successes. The two main problems to be solved were:

(1) The developing of a cheap, reliable method of heating, and

(2) The controlling of temperature and the production of moisture.

I overcame Number 1 quite simply and effectively. I built a small sheet steel stove with bottom and top oven. This had ordinary gas stove burners on the inside, the flame impinging on fire-brick baffles and the fumes carried out of the green house through long flue pipes under the benches, which acted in the same way as hot water piping. The open top has a loose pan on it which is kept filled with water. With this apparatus, I have had no trouble in keeping the green house temperature at 60° F. or higher—and with an outside temperature of 20° F and a strong wind blowing. I have had one of these stoves in operation now for five years and have had absolutely no trouble—always steady and reliable heat. Another feature is that the apparatus requires little attention. For a green house 10ft. x 20ft. floor area, the cost of the stove was about £2. An adaptation of this design for burning fuel or petroleum, where gas is not available, could easily be made.

So much for the control of winter temperatures. But the problem of summer heat control and humidity control took a great deal longer to solve, and, in fact, I have only this year brought my experiments to a satisfactory conclusion. All kinds of spray systems were tried and discarded. Frequent dampings of floor and benches was not satisfactory. Transferring my plants from pots to baskets and watering heavily helped some, but the risk of over-watering was too great. The final solution was again fairly simple. A small fan of 600 cubic feet capacity was mounted in a box, of which wire screening formed two sides and the back. These three sides were made of double screening—the two layers being spaced some two inches apart. The spaces were lightly filled with fine wood shavings—coke or charcoal should serve as well—and on the open top of the box and covering its full surface was fitted a pan in which small holes had been punched round the edges. This is kept filled with water, which can trickle continuously through the filling of the walls of the box. The filling must be kept always wet. The contraption is mounted outside the glass house, but in position against an opening in the lower wall, so that the fan draws the air through the damp filling and blows it, cool and moist, through the house.

All other ventilators than the bottom one mentioned are kept closed, with the exception of one small one in the roof, which is kept open to permit the discharge of hot air.

This installation, complete with fan, cost about £2/10/-, and although I have not had it long, I have made some careful tests, with the following results, in a green house 10 x 20 feet, with no shading other than paint on the glass:—Outside temperature 102° F. with relative humidity 15%. Inside temperature at bench level 80° F. with relative humidity 80%. Just below the roof, the inside temperature was 90° F.

Should any of your readers be interested in these apparatuses, I shall be glad to send detailed descriptions and sketches to any who would care to write me.

I conclude with best wishes for the successful future of the "Review" and to my fellow growers in the Commonwealth.

Protection for Our Native Species

● We have received a letter from Mr. T. C. Alston, of Melbourne, Victoria, with reference to our Editorial under the above heading which appeared in the last issue. Mr. Alston said, "I agree with every word of the Editorial in the last issue of 'The Australian Orchid Review,' but think the enclosed advertisement which appeared in the same number is hardly consistent with the sentiments expressed in the Editorial."

Mr. Alston enclosed the advertisement of Mr. David Clark, of Dorrigo, which appeared on page vi. relating to *Dendrobium falcorostrum.*

We are pleased that this apparent discrepancy has been called to our notice. Mr. Clark informed us, when submitting his advertisement, that all plants sold by him are taken from felled trees, and that such plants would otherwise be burned or left to die. No plants are taken from live hosts, but are collected immediately the trees are felled and before they are taken to the mills.

Dorrigo, and particularly Deer Vale, is one of the important centres of our timber industry, as is well known, and of necessity great damage is done to Orchid life there.

It will thus be seen that Mr. Clark is not guilty of vandalism, but is actually helping in the preservation of this rapidly disappearing species, *Dendrobium falcorostrum.*

The Treatment of Newly Imported Dendrobiums

A. P. BLAIR, *Toowong, Q.*

● I will assume you have just landed some Dendrobes and that you have examined them thoroughly for any sign of scale or other pests. Having done this and found none, you can safely hang them up in your bush house or glass house, for three or four days.

Each Orchid has to be considered as a separate unit, and while they are hanging up you can decide what you are going to do with them. If they have arrived in a dormant condition you could keep them hanging up, keeping them fairly dry, just giving enough water to keep the bulbs plump until the spring, when growth will become active and the plant potted up. But if your Orchid has landed with growth started, young weak growths—a big plant with a mass of matted roots—in my opinion the correct method is to cut out the leading growths with, if possible, three back bulbs, and pot them up singly or placed together in a larger pot or basket, leaving the rest of the plant to be treated as dormant.

AN ATTRACTIVE GROUP OF DENDROBIUM HYBRIDS

The group comprises Gatton Monach (centre), Miss F. King (left), and Renown (right).

Plants grown by Mr. S. C. James. Photo by Mr. E. A. Hamilton.

just using some strong twine, and hanging them right side up on the shadier side, the correct idea being gradually to accustom these Orchids, after being torn off trees and collected in camps, and afterwards despatched to their different destinations, to light and moisture. Now there are growers who will advise you to hang these Orchids upside-down and not to water them for a few days, and these growers' opinions are certainly worth considering, but the first thing I do after hanging them up is to give them a light syringing, and then I leave them alone

I think that making a new plant with fresh roots and growths is much preferable to potting up the old plant just as it is torn from the tree. But perhaps you have got a smaller plant, and with judicious use of the knife, just cutting out bulbs that have been damaged and bulbs that are obviously of no use, and with the root system similarly dealt with, this could be potted up just as the grower wished.

Some plants arrive in a very poor condition, and, with the exception of a few leading growths, may be quite dead. The leading growths should be cut out and potted up, the receptacle being about half filled with crocks and equal parts of Osmunda Fibre and Polypodium peat—these last two being kept apart in the pot, for I do not think you get much result by mixing them. The Orchid should be potted up firmly, with the material just moist. Where the young roots are pushing out, every effort must be made to keep them growing. By syringing them every morning the growths will be gradually hardened, and they can then be hung up close to the glass to get all the light and warmth possible. Speaking generally I find that Dendrobes make root growth at a very early stage, and to get healthy bulbs you must encourage them in every possible way.

I have a plant of *D. Phalaenopsis* potted in the same mixture, with the addition of some Sphagnum moss, each being kept apart, although I do not consider you require Sphagnum when you use Polypodium peat. This was potted up early in the season and made good growth and roots, and flowered. It is apparently a very vigorous growing variety and is well worth growing.

I have also some native Dendrobes from Dorrigo, N.S.W. These have been fastened to the trunk of a tree fern. In this instance I have placed a layer of Polypodium peat around the fern trunk and then placed the Dendrobes on top, fastening with copper wire. This is hung well up in the bush house, and as an alternative way of growing Dendrobes I thought it might interest you. I know that I will watch them myself with interest, just to see how they will compare with similar plants under pot or basket culture.

Orchids and the Man - *Continued from page 16*

moss, and press it into a two-inch pot so that a smooth, convex surface has its centre just below the level of the rim. The pots must then be well soaked and allowed to drain. When the surface of the ball is damp, but not soggy, the seeds are sown sparsely upon it. The pots are then placed in the case on top of the inverted pots, and kept moist. A further variety of method is to dispense with the case, and cover the pots with panes of glass, first placing very low stops under them to allow some degree of ventilation.

The time taken for germination varies with the varieties of the seeds and the conditions, but regular inspection will soon show when growth has commenced. The first sign of vitality is that the fertile seeds become a lively green in colour, and gradually thicken. Then a growing point appears, followed shortly by the root. As soon as the root is well developed, the seedling should be pricked out and planted into a tiny pot in a very fine compost of leaf mould, osmunda fibre and sphagnum moss in equal parts rubbed through a very fine screen. A little fine sand may help to keep the compost open. The pots must have a 75 per cent. drainage of charcoal and crocks. The compost should be thoroughly dampened and drained before the seedlings are planted in tiny drills in the surface. A light spraying will settle them in position. A number of plants may be planted in each pot, being set out about a quarter or half an inch apart. The percentage of mortality will probably be high, but with care one or two plants of each little pot-load may be kept alive. The pots should then be kept in a reasonably warm place, but the principal factor in the plant's development will be a tepidly moist atmosphere. As the little plants increase in size and strength they may be transferred to individual pots with relatively increased coarseness of compost. Do not be impatient. Years must elapse before they flower, and steady development will be of more lasting good than a hasty forcing which may exhaust them long before they reach the potential flowering stage. Shade is necessary for very young seedlings, and they must not be subjected to a strong light until they are well grown. I feel sure that if a number of our readers will experiment in the hybridizing of species and genera of Orchids and keep careful notes of the results of their experiments, they will not only get a greatly increased satisfaction from the hobby, but will also, by communicating the conclusions arrived at from their work to their fellow Orchid culturists, help to add to the fascination of this most fascinating cult.

Notes of an Amateur Orchid Hunter in Kenya

The Australian Orchid Review is particularly glad to publish this article contributed by one of its readers in a part of the world, the Orchids of which are very little known to us. It was mentioned in an article accompanying an illustration of an *Angraecum*, which appeared on page 17 of the issue for June, 1937, that very few commonly cultivated Orchids came from Africa, and these notes from a resident of Kenya will be welcomed. The author resides at Kipchui Farm, Fort Ternan, Kenya Colony, and here deals with:—

ANGRAECUMS

E. P. FIRTH, *Kenya.*

● First of all, perhaps, it would be as well to give readers some idea of our African surroundings, geographically, topographically and climatically. Kenya lies on the Equator and rises in altitude from sea level to over 17,000 feet. The great part of the highlands is from 5,000 to 8,000 feet in altitude, and the climate varies from tropical at the coastal level to sub-tropical and even temperate at the higher altitudes. We have roughly two seasons—the long rains, commencing in March and ending in June, and the short rains in October and November. Due to the mountainous nature of the country, temperature varies with the locality, but in the highlands it ranges between 50° and 96° F. The average temperature would be in the vicinity of 68° all the year round. Rainfall varies from 14 inches in the dry parts to 9 feet and more on the slopes of Mt. Kenya.

CYPRIPEDIUM
GERTRUDE WEST

An attractively marked hybrid of fine shape and size

Plant grown by Mr. S. C. James.
Photo by Mr. E. A. Hamilton.

From the foregoing, considerable variation in the flora would be expected, and this is the case. At the higher levels, lovely wild flowers grow, but few showy Orchids, whilst at the lower elevations the finest of the Kenya epiphytes abound. In the course of my wanderings in search of Orchids I have come upon many choice specimens of *Angraecums*. At an altitude of about 8,000 feet I found one particularly charming one which I believe to be *Angraecum Thompsoni*. It grows in large clumps, in dense shade, on Cedar and other trees. The stems are thick, woody and scandant in habit. The leaves are from 8 to 12 inches long and 1½ inches wide, dark green, glossy and thick. The plants have masses of long aerial roots. The flowers are borne on racemes 12 inches long which carry from 8 to 10 blooms each. A large plant may carry up to fifteen racemes—all in bloom at once. The flowers are pure white, star-shaped, and about 1½ inches in diameter. The flowers' characteristic spurs attain a length of 7 inches and are pinkish in colour.

From a slightly lower altitude—about 7,000 feet—comes another very pretty species, the name of which I have not as yet been able to ascertain. This also thrives in dense shade and appears to favour trees which overhang streams. The flower is white, with narrow, pointed petals and three-inch spur which is tinted green. It is delightfully fragrant at night.

Yet another choice variety comes from the Nyanza Province at an altitude of about 4,800 feet. Of dwarf habit, this species seldom exceeds eighteen inches in height. The leaves are leathery and closely set on the stem. One to three racemes are carried, and each bears eight to twelve flowers. These, too, are pure white, with pale greenish spur only 1½ inches in length. This is another kind having a delicious perfume at night—rather hard to identify, but seeming to mingle heliotrope, oleander and tuberose.

The finest of all the Kenya *Angraecums* is *Angraecum Kotschyi.* It is a small plant, having coriacious, leathery, dark green leaves, 10 to 12 inches long by 3 inches broad. It requires tropical treatment. To see half a dozen or more plants in a clump in full bloom gives the amateur hunter a thrill. Three racemes are carried by each plant, and they hang down to a length of 2½ feet. The flowers are white, 2½ inches in diameter and star-shaped, and with a pink spur 9 inches in length. Up to 20 blooms are carried to each raceme.

It has been stated that there are 120 different species of *Angraecums* in Africa, but I would not be surprised if this estimate was on the conservative side. I have come across twenty kinds in Kenya alone, and I have by no means found them all. Further afield, in Uganda, is to be found the lovely *Angræcum infundibulare,* the green - throated, trumpet - shaped flowers of which, with their shovel - shaped lip and pure white petals and sepals, attain a size of 7 inches across. This species is scandent in habit and of light growth. The woody stems grow in zig-zag fashion, first in one direction and then, at the next node, in another. The leaves are from 4 to 6 inches in length and of light transparent green colour. Many aerial growths grow from the stem. Like all *Angraecums,* the plant thrives in deep shade.

Dendrobium Tetragonum

(*Continued from Page Twenty*)

though smaller than that of *variabilis,* the sepals being up to ⅞ of an inch long, makes a pleasing and attractive contrast in the delicacy of its colouring. Up to the present I have not recorded this variety from any locality other than the Illawarra. Should this variety turn up elsewhere, I would be grateful to receive flowers and field notes relative thereto.

It is a great pleasure to ramble through gullies during September and October, when the Four-angled Dendrobe permeates the air with its delicious perfume, and, although this species may never have more than a passing interest to horticulturists, it will be useful to distinguish these varieties for ecological purposes.

At the nest of the Yellow-throated Scrub Wren, birds and Orchids meet. I have found nests of this lovely wren decorated with small plants of the Four-angled Dendrobe and other native Orchids. All who are interested may refer to an article in the "Orchid Review," Vol. XLIV., No. 513, p. 65.

Notice to Contributors

● Readers are reminded that contributions of both articles and photographs are welcome, and for the March issue should be in the hands of the Hon. Acting Editor, Mr. R. M. Stewart, 197 Elizabeth Street, Sydney, N.S.W., before the end of January. We particularly invite notes from overseas readers who are able to give us information concerning the growth of Orchids in their natural haunts, and local growers are again reminded to send in details of any matters of interest which occur in their sphere of Orchid culture. Contributors who may feel diffident at appearing in print may send rough notes which will be written up by our Editorial Staff. Growers who have exceptional blooms or any of an unusual nature are asked to 'phone Mr. Stewart at M3722, or in the evenings at X3255, and he will endeavour to make arrangements to have them photographed if considered suitable.

The Orchid House and Cultural Conditions

● Owing to pressure of space, Part 3 of Mr. A. B. Tanner's article on this subject, has been held over till our next issue.

Some Notes on Nomenclature

With an index to the meaning of names of Australian Orchid Genera

The Rev. H. M. R. RUPP, ***Raymond Terrace, N.S.W.***

● The scientific names of plants are often a stumbling block to people who are plant-lovers but not botanists, and who know nothing of Latin and Greek, the languages of nomenclature. I think it is, however, generally understood, that the use of these languages, or at least of Latin, is necessary for international purposes. In order to overcome the difficulty presented to the general public by these scientific names, efforts have increased of late years in many countries to adopt or invent popular names in the language of the country. In Australia, the Victorian Field Naturalists' Club is prominent for its labours in this direction.

I am not, I confess, enamoured of this attempt to bring into operation a general rule substituting "popular" for scientific names, nor do I think it can ever achieve more than a partial success. Scientific names hold good all over the world. The great majority of popular names, especially if they are in the current language of the day, are confined within limited areas. I know there are exceptions, but exceptions are said to prove the rule. In Australia, many of our widely-distributed plants are known by different popular names in different States, and even within different districts of one State. On the other hand, the same popular name is employed for dissimilar and unrelated plants. The Christmas Bush of New South Wales is not in the least like the Christmas Bush of Victoria and Tasmania, and neither of them is like that of West Australia. In Barrett and Nicholls' "Gems of the Bush," a Victorian publication, the name Tongue Orchid is applied to a group of Terrestrial Orchids which are never known by that name in New South Wales, where it is used of an epiphyte with tongue-like leaves. Similarly, the name Spider Orchid is applied in different areas to different plants, some terrestrials and at least two epiphytes. If a popular name commends itself to flower-lovers in any locality, it is not likely to be discarded because some Society rules it out in favour of another name. And some of the popular names invented by those who cannot tolerate scientific names can only serve to defeat the object in view. Someone has bestowed upon our little Oberonia Titania the name "Soldier's Crest Orchid." Now if one has to use a powerful magnifying glass, in order to discover in this flower anything remotely resembling a soldier's crest (whatever that may be), I protest that this is reducing popular nomenclature to an absurdity. I am not arguing against the use of popular names, provided they have some obvious significance or are likely to be generally acceptable. But it seems to me rather futile to insist upon labelling every plant in the census with what is, in many cases, a mere nickname, in order that the proper botanical name may be avoided. I have in my possession a book by a well-known botanist who is a convert to this yearning desire for popular names. In it he describes the flora of one of the outstanding wild-flower areas of Australia. Though packed with useful information, the book irritates me so intensely that I rarely use it. In nine cases out of ten I have not the remotest idea what the plant is that he describes, until I hunt it up in the index where the botanical name is given. It is very annoying to have to do this half a dozen times for one page.

Surely the dread of scientific names is very largely the dread of a bogey. I do not deny that there are monstrosities amongst them. When I am confronted with *Pseudogrostistachys* or *Schickendantziella*, I murmur "Not to-day, thank you," and shut the door. But monstrosities are not the rule. In our own particular family, the Orchids, if you take up an average grower's catalogue I think you will find the longest and most difficult names among the hybrids raised by growers themselves. In an actual Orchid Census you may find worse "tongue-twisters," but most of these belong to plants too inconspicuous to require names for popular use. I have heard people complain about the scientific names of wild-flowers who talk quite freely about Bougainvilleas, Chrysanthemums, Eschscholtzias, Gladioli, Agapanthus, and other garden flowers. It is largely a matter of getting used to the words. I think it helps if we know what a name means, or why it was given. Part of my purpose in writing this paper was to provide such information in regard to the generic names of Australian Orchids. I must confess, however, that in many cases it proves very difficult to trace the idea that was in the author's mind when a particular genus or species was named. The difficulty is greater with genera than with species, because it is, of course, easier to define an individual than a group which may include many hundreds of individuals. And without access to the original description—which is often beyond reach—one cannot always be sure what the author meant. Obscurity remains in some cases even after close search. What, for example, is the real meaning of *Dipodium?* In the case of *Diuris*, the reason for the name leaps to light immediately you know that it is formed from two Greek words meaning "two tails." The lower sepals of all *Diuris* flowers are so obviously the two tails. By analogy, *Dipodium* should mean "two little feet"; but if it does, why? I can find no clue, unless the author——Robert Brown—supposed the two pollen-masses to resemble feet; but he does not say so in his "Prodomus." But notwithstanding obscurities like this, I think it is helpful to investigate the meaning of scientific names, and the result may often enable us to appreciate a name which otherwise conveys nothing beyond a sense of difficulty in pronunciation. With regard to pronunciation itself, I confess that I usually take the line of least resistance, shamelessly careless whether I offend the ears of classical scholars or not. In conclusion, I append the result of my inquiries into genera known to me.

1. *Liparis.* (Author, L. C. Richard, 1754-1821.) Obscure, word of Greek origin. F. M. Bailey says the name alludes to the "soft surface of the leaves of some species." There are about 100 species outside Australia; 7 or 8 within.

2. *Oberonia.* (J. Lindley, 1799-1865.) A fanciful name taken from Oberon, King of the Fairies in Shakespeare's "Midsummer Night's Dream." 2 in Australia; about 100 elsewhere.

3. *Mycrostylis.* (T. Nuttall, 1786-1859.) From Gr. *micro*, and *stylos*, "small column." 1 in Australia; 100 exotic.

4. *Dendrobium.* (Sir J. E. Smith, 1759-1828.) From two Greek words signifying "tree life." About 45 Austr.; 850 exotic.

5. *Phalaenopsis.* (K. L. Blume, 1796-1862.) 1 Austr.; 45 exotic. Literal meaning, "like a whale."

6. *Bulbophyllum.* (L. M. A. du Petit-Thouars, 1758-1831.) Two Greek words meaning "swollen or bulbous leaf." This characteristic is by no means universal within the genus. About 18 Aust.; at least 800 exotic, probably now many more.

7. *Cirrhopetalum.* (Lindley.) "Wind Petal." I was doubtful of the etymology of this name ——"wind petal" seemed to make no sense, and "fringed petal" strained the derivation process too far. Mr. W. B. Worth, however, has reminded me that the petals of most species are on a hinge-like "claw" which makes them quiver at the least breath of wind. "Wind petal" therefore stands. 1 Austr.; over 70 exotic.

(To be continued)

Census of North Queensland Orchids

ADDENDA et CORRIGENDA

● This census appeared in the issue for March, 1937 (No. 1, Vol. 2), and a small concluding portion was published in the following issue. As in the main lists, the figures appearing after the name of plants indicates the observed flowering months.

Oberonia
iridifolia. Add loc. *Mt. Dryander (Jezard)*
Titania. Add. loc. *Mt. Dryander (Jezard)*
Liparis
Nugentae. Add loc. *Mt. Dryander (Jezard)*
cuneilabris. Add loc. *Bellenden Ker (Flecker)*
Dendrobium
bigibbum. Add mo. 3.
Fitzgeraldi. *F. v. M. Fitzgerald's Dendrobium Is. of Torres Strait (Bail.)*
undulatum to be read in lieu of Fitzgeraldi.
Add loc. *Mt. Dryander (Jezard)*
tetragonum. Add loc. *Mt. Dryander (Jezard)*
gracilicaule. Add loc. *Mt. Dryander (Jezard)*
Taylori. Add loc. *Bellender Ker (Flecker)*
Mortii. Add loc. *Mt. Dryander (Jezard)*
Carrii. *Rupp.*
Up. Mossman R. area (Carr)
Bulbophyllum
exiguum.
var. Dallachyi
add loc. *Mt. Bartle Frere (Miss Vallance)*
Macphersonii.
Add loc. *Mt. Dryander (Jezard)*
Calanthe
veratrifolia
Add loc. *Mt. Dryander (Jezard)*
Cymbidium
canaliculatum
var. Sparkesii.
For *Heghenden (Rupp)* read *Hughenden (Q. Herb.)*
iridifolium
Add loc. *Mt. Dryander (Jezard)*
suave
Add loc. *Mt. Dryander (Jezard)*
Geodorum
pictum. Add loc. *Mt. Dryander (Jezard)*
Cleisostoma
orbiculare. Add loc. *Mt. Dryander (Jezard)*
Ornithochilus
Hillii. Add loc. *Mt. Dryander (Jezard)*
Nervilia
holochila. Delete loc. *Proserpine*
Dallachyana. *F. v. M.* 12
Proserpine (Macpherson)

Woodlice and Other Pests

H. J. R. OVERALL, A.A.C.I *Manly, N.S.W.*

● With the coming of the first of the warm weather, we find the woodlouse or slater busily breeding in millions to welcome the new growths and tender roots of our Orchid plants. It is my belief that these are one of the worst pests with which we have to contend—not only in our bush and glass houses, but in our gardens. Constant chewing of the roots of Orchids will set the plant back badly, and hollow potato traps seem quite inadequate to cope with them, especially at this time of the year.

VANDA TRICOLOR

A well-flowered plant of this popular species. See page 18 for description.

Plant grown by Mr. L. H. Newman.

Photo by Mr. E. A. Hamilton

I have experimented with various poisons in my efforts to combat the slater, and have tried out various methods of applying it. Upon some, the prospective victim has fed with no ill effects whatever, but I can confidently recommend the following as being deadly, not only to woodlice, but to snails and slugs as well.

The poison element is Calcium Arsenate. In a spot where there is no wind, lay a sheet of newspaper and on it spread nine parts by measure of moist bran. The bran must not be wet—just moist—so that when squeezed it will almost but not quite form a ball. Upon the bran sprinkle one part by measure of powdered Calcium Arsenate, and mix thoroughly. It will probably be found necessary to add a little more water to hold the white powder to the bran flakes. The mixing is done by rubbing thoroughly through the hands, and care must be taken that the bran flakes do not adhere to one another, as balls or lumps of the mixture would be dangerous to small children, domestic pets and birds. Calcium Arsenate is fairly readily soluble, and is a very active poison, and when mixing, great care must be observed that none of it enters cuts or becomes lodged in the finger nails, whence it may be transferred to scratches. I recommend that the hands be first thoroughly rubbed with vaseline, lanoline, or some other greasy substance, and that the finger-nails be filled with soap by scratching a cake. Thorough washing in warm water should follow the spreading of the baits.

For a measure, any receptacle of convenient size can be used—preferably an old tin which can be destroyed afterwards.

The mixture is applied by spreading it very thinly—just a few flakes at a time—along the edges of paths or lawns or wherever woodlice, slugs or snails find harbour. Keep it away from plants as much as possible—especially in the glass house or bush house. Arsenic is a plant poison, and may very seriously injure valuable plants. Ferns are particularly susceptible to arsenical poisoning.

Apply the baits outside in fine weather after a hosing down. The poison will be readily washed into the soil in wet weather and so ceases to be of value. Three applications per year should be sufficient to keep the pest well under control—two at 3 or 4 weekly intervals during the spring, followed by another towards midsummer.

In the bush house, the same remarks apply as to fine weather being necessary, of course; but in the glass house, the baits can be laid at any time, but preferably during cool weather when hosing down is not necessary.

Cattleyas

(*Continued from Page Four*)

air permitted, the moist atmosphere and the shade seeming to me an ideal we here can only hope for. *Cymbidiums,* some *Cypripediums,* some *Dendrobiums,* etc., evidently enjoyed the conditions, but I think an advantage could be gained by roofing a portion, or one end, with glass. There, if a minimum temperature could be maintained (difficult, perhaps, in some parts of New South Wales, but easy in others), *Cattleyas* ought to grow and grow well, the glass protecting the plants from undue rain, and giving a drier air during the winter. It may be the Sydney climate is too cool—I cannot say—but the experiment might be worth trying.

As regards compost, I am still rather in favour of clean osmunda fibre as a base. The "Todea" (?) fibre I saw used, varied considerably in texture, and much depends on its proper drying, I think. It seems a matter of indifference what fibre is used if it be of the right texture, and with a tinge of acidity, but I would always suggest the addition of crocks (old pots broken to pieces from dust upwards) and charcoal in a greater proportion than advocated in Europe. It would help counteract overwatering. A sodden compost is more detrimental than one on the dry side, but it must be remembered, when water is given, stale air is expelled from the compost, and fresh air follows the water.

Whatever compost is used, plants should be examined twice a year, and any weak places in their compost made good. Particularly any which are found near and under the rhizome should be firmly renovated. Inconsistency in the compost often leads to faulty root action, hence the inadvisability of potting Cattleyas as one would pot on an ordinary plant. If the old compost be inserted as a whole and new simply placed round, the old, already half way to decay, soon rots, leaving a gap. The greater portion of the old compost should be removed, dead roots cut away, and if many live roots are present, they may be shortened; the insertion of a quantity of roots, however good, usually leads to their premature decay, and large channels in the compost.

In general, a close study of the plants and local conditions are the leads to success in Orchid culture.

The Sydney climate, as I remember it, differs from that of Melbourne, the latter having greater fluctuations and approximating more to the English, a command of pipe heat would be required for longer periods, and the bush houses could not accommodate *Cattleyas* throughout the year, if at any time. In Sydney there seemed to me a possibility of growing *Cattleyas* in the bush house, and wintering them under glass, but I think a glass house entirely devoted to them, and their allies, would be the better.

I will mention, in conclusion, one other point, which, however, must be left to your observation. In your glass houses, possibly because the supply of air of their interiors is governed by ventilation and there is not the free movement of air as outside, and the moisture is heavier, it always seems to me that a slightly lower temperature inside is the equal of a higher one outside, particularly in the day. 70° under glass seems to be about equal to 75° outside. There seems no definite rule, but I have noticed that Orchids in their own homes, growing under an average temperature (say 70°), succeed better in a slightly lower artificial temperature; the greatest rise should be obtained by sun heat, and that produced by pipes kept slightly below.

Notice to Subscribers and Advertisers

● Subscribers are reminded that subscriptions to "The Australian Orchid Review" for the year 1938 are now due. Advertisers are asked to forward particulars of any alterations desired in their advertisements to the publishers, Shepherd & Newman Pty. Ltd., Yurong Street, Sydney, before the end of January.

QUALITY'S
HIGHEST STANDARD,

Steadfastly holding to our initial aim of creating good work alone, we have built a reputation in colour engraving and all branches of process work . . . none claim to make better . . . none actually are consistently as good.

PHOTO-ENGRAVING
ART COMPANY LIMITED
HALF-TONE AND COLOUR PLATE SPECIALISTS

CENTRAL BUILDINGS, 89 WILLIAM STREET, SYDNEY
TELEPHONE F 1151 - 2 - 3

ORCHIDS

We hold an immense stock of FINE HEALTHY ORCHIDS
A Wonderful Selection of

HYBRID CATTLEYAS
LAELIO-CATTLEYAS
CYPRIPEDIUMS
ODONTOGLOSSUMS
MILTONIAS

Plants of flowering size. Over 35 years' experience in export packing to Australia
Prices very reasonable. Write for our CATALOGUE without obligation.

MANSELL & HATCHER
Limited
Dept AOR. RAWDON, LEEDS, England

ORCHIDS

Special Offer *All Post Free*

6 different species CYMBIDIUMS 24/-
6 different species CYPRIPEDIUMS 24/-
12 different species showy DENDROBIUMS 38/-
12 different showy species, selected from above kinds and others 28/-

CALADIUMS
24 different fancy named varieties 24/-

NOTE.—These prices are in English currency.
ALL POST FREE

Over 24 years exporting experience at your service

ORCHID CULTURAL BOOKLET
PRICE 1/-

But free with all Orders

Wholesale and Retail Catalogues of Orchids, Caladiums and Seeds Free on Request.

The Chandra Nursery
P.O. Rhenock Sikkim 54
INDIA

Splendid stock of

CATTLEYA, CYMBIDIUM,

CYPRIPEDIUM, ODONTOGLOSSUM

and PHALÆNOPSIS hybrids.

Over 3 acres of newly-built houses

devoted to Orchids

FLANDRIA

BRUGES (Belgium)

SANDERS
St. ALBANS
ORCHID GROWERS, HERTS., ENGLAND

OVER 50 YEARS' EXPERIENCE
AT YOUR SERVICE

TO SUIT ALL HOUSES **ORCHIDS** TO SUIT ALL CLIMES

WRITE FOR
Special Offers—Latest Price Lists
and
"Cultivation of Orchids"
An
illustrated and interesting Book free on application to Members of the Orchid Societies of New South Wales and Queensland.

●

SANDERS ORCHID GUIDE
A complete work on all best known species
1927 EDITION—POST FREE—21/-

ORCHIDS

Cymbidiums — Cattleyas — Dendrobiums — Cypripediums, &c.

You get Good Plants at Keen Prices from

Armstrong & Brown

Tunbridge Wells, England

◆

Write for Price Lists. All orders received shall have our very best attention in packing and selection of the plants.

ORCHIDS

Orchids of merit in great variety
Ranging from seedlings to specimens
Choice Exhibition or Commercial varieties
Hybrids from parents of distinction
Interesting Botanical Specimens
Delivered all over the world, by:

Stuart Low Co.

Nurseries: Jarvisbrook, Sussex.

Head Office: Bush Hill Park, Enfield,
Middlesex, England

Catalogues on application. Inspection of our houses invited. Offer of collections.—small or large—prepared on request.

The Scarlet
DELPHINIUM

Nature's gift to Garden Lovers—the Flower of the Future

Tall growing, free flowering, well branched habit. True Scarlet in colour, hardy, easily grown, long lasting. Plant now.

4/- each. 6 for 21/-. Posted free

IFAFA LILIES

Hardy, free flowering in 5 distinct shades. White, Yellow, Red, Apricot and Pink. One of each, 6/-

Philip Montague

Bulb Specialist

Frankston, Victoria

WATER LILIES

Six distinct colours — flesh, rose, white, yellow, red, salmon, for 27/6, or 5/- each posted.

◆

J. OVERALL

Darwin Nurseries

Sulphur Creek

TASMANIA

ORCHIDS OF SIAM

Sent to all parts of the world in any quantity

Only strong and healthy plants supplied

Lists free on application

The Bangkrabue Nursery

24kh. Phaya Klahom's Lane
BANGKRABUE, BANGKOK, SIAM

Notice to Advertisers

All enquiries as to Advertising space in this "Review" should be addressed to the publishers:—

Shepherd & Newman, Pty Ltd.
YURONG STREET
SYDNEY, N.S.W.

INDIAN ORCHIDS

Fine collections of showy Orchids for £1, £2/10/-, and £5. Packing and Postage free to any address.

G. GHOSE & CO.

Exporters of Orchids, Liliums and Himalayan Flower Seeds.
TOWNEND, DARJEELING, INDIA

NATURAL HISTORY BOOKS

New and Second-hand, including a special purchase of 1600 from the Library of the late W. Howat Esq. Full list on request. Also FIELD NATURALISTS' REQUISITES, MICROSCOPES, Telescopes, Field Glasses, Survey Instruments, etc.

N. H. SEWARD PTY. LTD.
457c BOURKE ST., MELBOURNE

By Appointment to the Sikkim Durbar

Headquarters for everything in Indian Orchids, Bulbs, and Himalayan Flower Seeds

12 Cymbidiums, 50/-; 12 Cypripediums, 55/-; 12 Grand Dendrobiums, 36/-; 6 Vandas, 24/-; 25 Different Showy Orchids, 50/-; 100 Eucharis Lily Grandiflora, £6. Post Free. Cash, please.

Catalogue free.

Get your requirements from the officially recognised reliable Firm:—

L. B. PRADHAM & SONS
Post Pakyong, Sikkim, INDIA

SECURE YOUR REQUIREMENTS NOW

if you want really good plants of Indian Orchids, Fresh Alpine Seeds, Bulbs, etc., at an unrivalled low price.

Apply to

D. SHAMSHER

POST PAKYONG, SIKKIM, INDIA

For Wholesale Price Lists
No one will serve you better.

DENDROBIUM FALCOROSTRUM

Three Bushel Sack	15/-
Bushel and Half Case	7/6

(on Rail Dorrigo)

DAVID CLARK
Deer Vale, Dorrigo, N.S.W.

SIAMESE ORCHIDS

12 Cypripediums in 6 sorts for 40/-; 12 Grand Dendrobiums for 35/-; 20 different showy orchids for 40/-; 12 Vandas in 6 sorts for 35/-; 6 Anthurium andreanum in variety for 60/-.

CARRIAGE AND PACKING FREE

Good Discount to Wholesale Customers

PHRA MAHA VICHAI
822 Prajadhipok Road, Bangkok, Siam

you are a flower lover, become a member of the Orchid iety of your own State; and join in appreciation of the climax of plants' evolution. Visitors welcomed at meetings.

●

The Orchid Society
of New South Wales

Meets every month on alternate last Tuesdays and Thursdays, in Room 507, Phillip House, Phillip Street, Sydney at 8 p.m.

The dates of the next meetings of the Society are as follows:—

DECEMBER:	TUESDAY, 21st	FEBRUARY:	THURSDAY, 24th
JANUARY:	TUESDAY, 25th	MARCH:	TUESDAY, 29th

A hearty invitation is extended to all interested in Orchids to attend.

Communications regarding the Society should be addressed to:

T. H. JAMES,
67 Arabella Street, Longueville.

●

Queensland Orchid Society

President:
MILES R. FOX
Queensland Fruitgrowers' Association
BRISBANE

Secretary:
T. C. HARVEYSON
G.P.O. Box 2002 X,
BRISBANE

Meeting Place:
MINIATURE RIFLE RANGE BUILDING,
Boundary Street,
BRISBANE

Meetings held on Second Friday of each month

Printed and Published in Australia by the Orchid Society of New South Wales
G. Hermon Slade, Hon. Editor.
Wholly set up and printed in Australia by Shepherd & Newman Pty Ltd., Yurong Street, Sydney.

ORCHIDS

Ask for our special list of freshly imported Indian Orchids at special reduced prices, to 50% cheaper than Indian firms.

For Quality see us

Our long experience in the Orchid Cult is at your disposal. Advice free.

TAYLOR'S

Orchid Importers and Exporters

5 Acacia Street, Belmore

NEW SOUTH WALES

ORCHIDAL

A proven German Orchid Fertilizer which produces remarkable growth and magnificent dark, almost black-green, foliage.

PRICE: 6/- per ounce.
£4 per pound. Post free.

One ounce makes approximately 30 gallons fertilizer.

●

Sole Agents:

W. Hermon Slade & Co., Ltd.,

Manufacturing Chemists,
ROSEBERY AVENUE,
ROSEBERY

Postal Address: **BOX 1540 D.D., G.P.O., SYDNEY.**

ROYAL BOTANIC GARDENS MELBOURNE
RBGM00009738